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Original Articles

PRINCIPLES UNDERLYING THE OPERATIVE TREATMENT OF STRABISMUS *

EDWARD JACKSON, M.D.

DENVER

It seems profitable to discuss here chiefly principles that are but partly recognized, forgotten or ignored, rather than those regarding which there is full recognition and agreement. We never forget that the normal contraction of a muscle brings its origin and insertion closer together. But it often seems to be forgotten that such normal contraction does not arise in the muscle itself, but is absolutely dependent on the nerve impulses coming to the muscle from the motor centers. Functionally the muscle has no existence apart from the nerve supply. Even its anatomic integrity depends on receiving the proper nerve impulses. If these are cut off permanently the muscle atrophies completely. If they are seriously interfered with degenerative changes set in. If they are diminished the muscle shrinks; if they are increased it hypertrophies. No operative readjustment of the ocular muscles can be permanent that is opposed by these nerve impulses; none can be completely successful that is not supplemented by them.

Our so-called "muscle operations," done on tendons of insertion, are attempts to modify the final mechanical results of nerve impulses. The position of an eye at any instant, or its habitual position, depends on nerve impulses. Only when we can not alter such impulses are we justified in attempting to change their mechanical effects by operation. The size, strength and habitual contraction of the different ocular muscles depend as much on the nerve impulses going to them, and as little on congenital peculiarities of the muscles themselves, as do the size, strength and habitual contraction of the muscles that give the soldier his erect carriage or the musician his perfect technic.

Normal binocular vision, as developed in man, rests on highly complex, exact reflex movements. The normal binocular movements are continuously guided by the sense of diplopia and the desire to avoid it. Between the seeing of the two eyes and the movements of the two eyes there is the most minute and comprehensive co-ordination, and the reflex to diplopia, the "fusion sense," dominates every normal ocular movement.

Strabismus is a fault of binocular movement. Somewhere in the co-ordinating mechanism, or the structure it controls, there is a break, a defect. The mechanism of co-ordination is still functionally active, although in some respects crippled and imperfect. The investigation of the particular kind of fault in the co-ordinating

mechanism must, in each individual case of squint, precede the selection or planning of any rational operation for its correction.

TWO CLASSES OF OPERATIVE CASES

The peculiarities of each particular case must be considered, but, in a general way, all cases may be placed in two groups: (A) Those in which the co-ordinated movements of the two eyes are to be guided by the visual impressions made on both, cases capable of true binocular vision, more or less completely developed; (B) cases in which the binocular movements must be guided by the visual impressions of one eye, the eye which "fixes." In the former class the problem is much more complex, the operation is to be an adjuvant, carefully planned to give assistance to the development of and utilization of nerve impulses. In the latter class the nerve impulses have been developed, and, in a sense, fixed, and the operation merely adapts the parts to secure from these impulses the best mechanical results.

In the past, operative success has been most frequently achieved in this latter class, because the nerve impulses to be dealt with, those of fixation with a single eye, were best understood. Normal binocular fixation is still an obscure subject, and of imperfect and abnormal types of binocular vision, such as exist in many cases of squint, we know very little. The nerve impulses connected with such anomalous use of the eyes are pretty certain to overcome and nullify attempts at operative correction, planned without attention to their influence. When, however, we come to understand better the abnormal, but definite and sometimes very persistent co-ordinations that exist between the perceptions and the movements of the two eyes in established strabismus, operative measures more in harmony with the real need of the case may yield good results. In Class A operation can disturb the existing co-ordination, giving opportunity for a new one to be formed under more favorable conditions, as with correcting lenses. With this in view it may well be repeated; its aim should be, not so much exact adjustment, as to establish mechanical relations that nerve impulses will tend to carry forward to complete the cure. In Class B the object of operation is rather the direct, accurate mechanical adjustment of parts, making due allowance for the temporary effects of operation, the modifications produced by cicatrization, and the degenerative and regenerative changes that occur in the muscles.

ASSOCIATED ACTIONS OF OCULAR MUSCLES

Of the infinite number of movements of which each eye is capable, not more than six at most can be brought about by the contraction of single muscles, and only two of these, convergence and divergence in the horizontal plane, are movements frequently performed. Convergence above or below the horizontal plane, like ele-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

vation or depression with the eyes directed forward, require the cooperation of two or more muscles.

While, theoretically, a few movements might be made by single muscles, it is not certain or probable that even these motions are thus produced. For the sake of smoothness, exactness and certainty of movement it is likely that changes of innervation occur in two or more muscles for every movement made. Conversely, each muscle takes part in the execution of many different movements, and even of movements in quite different or opposite directions. To operate on a certain muscle, to increase or diminish its effect on a single movement or group of movements, without any consideration of the effects that will be produced on other movements, is to invite disaster, or to trust to nature for a general readjustment, of muscular actions which the surgeon has never even thought of.

The direction in which the cornea is turned by contraction of a certain extraocular muscle depends on the relation of its point of insertion to the center of rotation of the eyeball. As the eye moves this direction changes, and a corresponding change occurs in the influence of the particular muscle. For instance, the superior rectus, inserted above the cornea and acting on a line passing to the nasal side of the center of rotation, when the eye is in the primary position, tends to turn the cornea upward and inward. When, however, the cornea is turned outward, so that the vertical axis lies in the same vertical plane as the line in which the superior rectus acts, this muscle turns the eye directly upward. If the eye is directed still further toward the temple, so that the line on which the superior rectus acts passes to the temporal side of the center of rotation, this same muscle tends to turn the eye up and out.

Only when the eye is in a certain position can the superior rectus act simply as an elevator. The more the eye turns inward from this position the more it becomes an adductor of the eyeball. The more it turns outward from the same position the more it becomes an abductor. The same is true of the inferior rectus, which in one position may act simply as a depressor, but in all others acts also as an adductor or abductor.

In the adduction of the eye the internal rectus takes part in all positions of the eyeball. It may be called the primary adductor. In most positions it is assisted by the superior and the inferior recti, which may be called secondary adductors. The power of the primary adductor progressively diminishes as the eye turns in and the muscle shortens. The adductive effect of the secondary adductors progressively increases as the eye turns in; that is, the power of these muscles thus becomes more and more devoted to turning the eye in.¹

In abduction the external rectus always takes part. It is the primary abductor. The obliques assist it, but least when the eye is turned in most strongly, so that the visual axis is nearly parallel to the plane of action of the superior and inferior obliques. As the eye turns outward the obliques become more and more effective as secondary abductors, until in extreme divergence they become the more important factor in abduction.

The superior rectus may be called the primary elevator. Such it is when the eye is turned outward, the inferior oblique acting rather to produce torsion. But when the cornea is turned toward the nose the inferior oblique becomes the elevator and the superior rectus has more influence in producing torsion. If, however, the

eye is turned strongly up the internus and externus come to the assistance of the primary elevator and help to turn the cornea up. Their insertions being brought above the center of rotation, they become secondary elevators.

Similarly, the inferior rectus may be called the primary depressor of the eye, its tendency being always to turn the eye down, though least effective in this way when the eye is turned strongly in, and the inferior rectus tends to produce torsion, while the superior oblique becomes a more efficient depressor. But when the eye turns down, so that the insertions of the internus and externus are below the center of rotation, these muscles become secondary depressors. The importance of their function as secondary depressors increases as the eye is turned down.

The obliques may be called the primary muscles of torsion. When the visual axis is turned to the temporal side, and level, so that it makes equal angles with the directions of the four recti muscles, torsion is entirely effected by the obliques. But in other positions the recti muscles take part in torsion; the vertical recti, as the eye turns in from this position; the lateral recti, to a less extent, as the eye is turned up or down.

SECONDARY ROTATORS IN STRABISMUS

In all cases in the execution of a particular movement the further that movement is carried the greater the share that the secondary rotators take in producing it. In strabismus the position of the deviating eye has departed from the normal. The relative importance of the primary and secondary rotators in determining its position correspondingly varies from the normal. The higher the degree of squint the greater this departure, and the greater the share of the secondary muscles in producing and maintaining the deformity.

Consider the bearing of this on particular operations. In a case of high convergent strabismus the eye is held in its abnormal position by the excessive contraction of a whole group of muscles, the internal, superior and inferior recti. Tenotomy of the internal muscle alone is but a partial tenotomy, as regards the muscles concerned. The indication is clear for extending the tenotomy to the superior and inferior tendons, and on them graduating it to the needs of the case. Without such extension tenotomy is absolutely ineffective in high convergent squint.

A superiority of advancement lies in the fact that it changes the position of the eyeball, and so lessens the power of the secondary rotators, whose influence is so large a factor in the maintenance of the squint, and renders more efficient the action of the secondary rotators that oppose the deviation. For example, in convergent strabismus advancement of the internus, actually turning the eye out, diminishes the power of the superior and inferior recti to turn it in; and increases the efficiency of the superior and inferior obliques in turning it out.

There is another difference between the actions of primary and secondary rotators, of great importance with reference to strabismus operations. The primary rotators tend to equilibrium with the eyeball in a median position. The secondary rotators tend indefinitely to increase the deviation. Thus, in convergent strabismus, the greater the squint the less the influence of the internus, and the greater the influence of the externus, tending to turn the eye to a normal position. But the greater the squint the greater the influence of the sec-

1. Trans. Section on Ophthalmology, A. M. A., 1906, p. 237.

ondary adductors in perpetuating it and increasing it, while the influence of the obliques as secondary abductors is correspondingly lessened. Tenotomy, confined to the primary adductor, the internus, lessens the relative power of that muscle, leaves convergence more a function of the secondary adductors, and, therefore, more likely to be extreme. Or, if excessive convergence is overcome, it leaves the eye with a weakened primary adductor to oppose the abductors, and, therefore, especially liable to turn out.

The primary rotators have a peculiar importance in opposing extreme movements in the opposite direction. The secondary muscles have very little value in this direction. Crippling of the primary rotators leaves the eye in a condition of unstable equilibrium, more liable under slight influences. Nor is this crippling to the muscle operated on. Tenotomy of the is followed by retraction of that muscle, but it is also followed by retraction of the externus. It is the retraction of the externus and consequent turning of the cornea outward that produces the desired correction of the convergence, for which the tenotomy of the internus is done. This shortening of the externus diminishes somewhat its power of rotating the eyeball outward. Hence, by the one operation of tenotomy done on the internus, both internus and externus have their power lessened, and the rotation of the eyeball is left more under the control of the secondary adductors, the superior and the inferior recti, and the secondary abductors, the superior and inferior obliques. The eyeball is left in the condition of unstable equilibrium, where the mutually opposing forces that tend to bring it toward a central position are weakened, and those which tend to carry it away from this position and hold it away from the central position are left relatively stronger.

LATERAL DISPLACEMENT OF TENDONS

Another principle that must come to be more generally recognized in the operative treatment of strabismus is that the effect of a muscle on the eyeball can be altered by displacing its insertion laterally. I have previously pointed out that the recti muscles, all having practically the same origin at the apex of the orbit, come to exert different influences on the eyeball through the different positions of their insertions.²

If it were possible to shift the insertion of one rectus to the site of the insertion of one of the others its function would be correspondingly altered. Thus, if we could attach the superior rectus to the eyeball at the nasal side, where the internus is inserted, it would have very much the effect on the ocular movements normally produced by the internus. Such complete shifting of insertion is, of course, impossible, and any shifting brings a bending of the muscle that tends rather to produce torsion. But it is practicable to shift the tendons laterally so as to cause an important change in the effects produced by the muscles acting through them.

One method of producing lateral displacement is by the extended tenotomy, which I described in 1905. This method was probably practiced and its good effects reported, without much theorizing on the subject, by some of the earlier operators for squint. Another method of securing lateral displacement I described as practiced on the superior rectus for paralysis of the superior oblique.³

A third method was brought to the attention of the last Heidelberg Ophthalmological Congress by Hummelsheim. He experimented first on the ape. He removed as much as possible of its internal rectus to destroy the function of that muscle. He then split the tendon of the inferior and superior recti, and transplanted the nasal half of each tendon to where the internus had been inserted. The animal was still able to execute movements of convergence and lateral movements toward the side of the excised muscle. Hummelsheim then performed a similar operation on a case of congenital abducens paralysis, in which the eye was unable to turn beyond the median line. He split the tendons of the superior and inferior recti and transplanted the temporal portions to the point of insertion of the externus. The result, reported five weeks after the operation, was an ability to abduct this eye thirty degrees beyond the median line.

At the French Ophthalmological Congress, in 1907, Dransart presented a case of injury to the superior oblique, in which by grafting its tendon on the upper part of the external rectus he obtained a good result. As to the best method of securing lateral displacement, to enable one muscle to take up the function of another, considerable experience will be required to decide. The point here emphasized is the importance of this principle in the operative treatment of strabismus and the need for its more general recognition.

The question of re-education of nerve centers, so that they can execute desired movements with unaccustomed means, is a large one. Only experience can settle the limits of possible achievement in this direction. But we know that after Motais' operation the patient can learn to close the eyes firmly, without the lifting of the upper lid, that at first occurs from contraction of the superior rectus, and tendon transplantations in other parts of the body seem to show that the possibilities of alteration in the function of muscles are quite extensive. But in the case of the superior and inferior recti we have muscles that normally aid in convergence, and probably to a slight extent in divergence, when convergence and divergence are extreme. There is every reason to expect that they can largely take up these functions in cases of disability of the lateral muscle.

EQUILIBRIUM OF LIMITED MOVEMENT

When extreme and permanent strabismus is brought about by complete loss of power in a certain group of muscles, leaving their physiologic opponents in unresisted control of the position of the eyeball, it should be possible to greatly lessen deformity, either by destroying the influence of the dominant muscles or, better, by neutralizing it through transference. Strabismus of this kind most commonly follows oculo-motor paralysis, because such paralysis acts on a whole group of muscles. Paralysis of the sixth nerve leaves the obliques still able to oppose convergence. Paralysis of the fourth nerve leaves the inferior rectus and the superior rectus and the externus to take up the different functions of the superior oblique. But oculo-motor paralysis destroys all the adductors, and leaves, unopposed, the externus and the superior oblique to turn the eye away from its normal region of fixation.

Some very good results from the operative crippling of unopposed muscles have been reported, notably by Prince.⁴ But I would suggest that it may be possible

2. Trans. Section on Ophthalmology, A. M. A., 1905, p. 73.
3. Ophthal. Rev., March, 1903.

4. JOURNAL A. M. A., Oct. 13, 1888, also Am. Jour. ophthal., 1902.

to so operate on the superior oblique as to make it something of a substitute for the internal rectus by a readjustment through which most of the belly of this muscle is attached to the tendon of insertion of the internus. Such an operation I have done on the cadaver. Vertical deviation can be prevented by fibrous attachments, and by adding any necessary readjustment of the external rectus it may be possible to bring about equilibrium and limited movement near the center of the field of fixation.

In cases of this kind we may be confronted with the difficulties connected with binocular vision. Where binocular vision is absent readjustment for cosmetic effect may not be very difficult. But with the liability to annoyance from binocular diplopia the difficulties of the case are enormously increased. Even here, however, re-education, with aid by blurring of the sight with lenses, may render relief possible.

SUMMARY

Let us bring together the principles underlying the operative treatment of strabismus that have been here discussed and those that have more commonly received discussion. The ocular movements are executed and controlled by nerve impulses, originated and guided by visual impressions. When these nerve impulses are faulty and can not otherwise be sufficiently modified to produce normal movements, readjustment by operative treatment may be resorted to. This readjustment may be accomplished: (1) By giving greater effect to certain impulses, advancing the insertion of a muscle; (2) by diminishing the effect of certain impulses through tenotomy, setting back the insertion of a muscle; (3) by transferring the impulses so that they will produce results different from those to which they were originally directed, lateral displacement of insertions; (4) by combining two or all of these changes.

Tenotomy allows retraction of the tenotomized muscle and also retraction of its opponent which is no longer resisted. The increase of power secured by muscular advancement may be temporary or illusory. Only modified nerve impulses are required to increase or diminish the power of any muscle. All muscle operations, temporarily suspending function, are followed by degenerative changes in the muscle substance.

Operation on a muscle should be undertaken only after careful consideration of all the movements in which it takes part, either as a primary or secondary rotator of the eyeball. The more important object in the treatment of strabismus is to bring about a muscular equilibrium. Static equilibrium so that muscular rest will leave the two eyes fixing the same point in a central position, and dynamic equilibrium, balanced movements, easy binocular fixation of greatest usefulness around this central point. A less important object is to secure movements, from this central point, of greatest range and with the least expenditure of effort. Where these objects are not attainable by increasing the power of a certain muscle or muscles they are to be sought by diminishing the power of opposing muscles or by transference of muscular power from one movement to another.

ABSTRACT OF DISCUSSION

DR. G. C. SAVAGE, Nashville, Tenn.: The law governing the ocular muscles is this:

The ocular muscles must so relate the two eyes that the two visual axes and the two horizontal retinal meridians shall always lie in the plane of the primary isogonal circle, and

that the two visual axes shall intersect at some point on this circle, in the interest of both binocular single vision and correct orientation. There are just two classes of esotropia (internal strabismus), the curable, including all patients who have ever had binocular single vision, and to whom binocular single vision may be restored, and the incurable, including the many patients who have never had binocular single vision and can never be made to see singly with the two eyes. In the curable patients the crossing has occurred one or more years after birth and the crossed eye becomes amblyopic. Such patients may be cured spontaneously (though rarely) or by art, in the sense that the muscles become obedient to the law of binocular rest and motion. Later by training, the amblyopia may disappear. Operations should always be performed on sinning muscles only. There are two causes of curable esotropia, the one principal (true esophoria, without which there can be no turning in of the eye) and the other accessory (hyperopia), which because of the intimate relationship between the centers of accommodation and convergence, creates a pseudo-esophoria which, added to the true esophoria, increases the work of the externi and the basal centers controlling them, in their effort to prevent crossing. No patient should be operated on without a clear understanding on the part of the operator as to whether the esotropia is simple or complicated. If the condition is simple esotropia, the sinning muscles are the lateral recti, and only those muscles should be subjected to operations. These operations should be done with the view of giving equal tonicity to the four recti, and in the more aggravated cases all four should be operated on. In a case of hyperesotropia, the four lateral recti should be operated on; their tension should be altered but their planes of rotation should not be changed. In the most complicated esotropia—cyclo-hyperesotropia—not only must the tonicity of the muscles be altered but the plane of rotation of one muscle or, maybe, two or three, must be changed.

Whether, in these cases, the esotropia be slight or severe or medium, there is no indication for operating on the superior and inferior recti, as advocated by Dr. Jackson in his paper. Muscles whose tonicity keeps the visual axes in the plane of the primary isogonal circle should not have their tonicity interfered with by any kind of operation; and if their tonicity is not altered it necessarily follows that their planes of action can not be changed. These operations may be safe in Dr. Jackson's hands, but why adopt them when esotropia can be treated on sounder principles? General adoption of this operation, even in the more severe cases, would be attended by frequent disaster. I am sorry that my good friend advocates the punishment of muscles that have not disobeyed the law governing them, which is: The superior and inferior recti must keep the visual axes in the plane of the primary isogonal circle regardless of the point of view.

DR. A. L. DERRIGER, Chicago: I find that sometimes patients present themselves for refractive troubles, headaches or some nervous symptoms. We make an examination both for muscular insufficiency and refractive error and find as much as 3, 4, 5 degrees hyperphoria and 6 to 12 degrees esophoria or exophoria. If we are in a hurry to suggest operation in these cases without going thoroughly into the refractive error we are very liable to fall down. In the last two years I take patients that come in for headache and nervous symptoms, go over the refraction carefully a half a dozen times, and have the patient wear full correction in every instance in which there is hyperopia and astigmatism. If the patient is neurasthenic, I regulate the diet and advise as much out-door exercise as possible. The muscular trouble often disappears after proper correction of the error of refraction and careful regulation of the diet and exercise. I had a patient, a man, aged 39, cross-eyed in both eyes since childhood (convergent squint); right eye turned in more than left eye; vision in right eye, 5/200; vision in left eye, 20/60. Advancement operation was performed on the muscles of the right eye and the opposing muscles were tenotomized. The wounds healed kindly, both eyes being refracted two weeks after the operation with the following results: O. D. V. = 20/200 with + 6.00 V. = 20/60; O. S. = 20/40 with + 4.00 V. = 20/20. Full correction was prescribed to be worn constantly. The eyes being perfectly

straight, the patient can see distant objects and read fine print distinctly. The patient has been under observation for one and a half years and the eyes remain straight, vision being 10 per cent. better than at first. Another case was that of a girl aged 2½ years: V. = 5/200; internal squint in both eyes, very high degree. Atropin was used for two weeks and the following correction gave perfect results: Right eye, + 4.50 V. = 20/20; left eye, + 7.50 V. = 20/20. Both eyes being perfectly straight with glasses on. I ordered full correction to be worn constantly. This case has been under observation for nearly two years and the eyes are straight with the glasses; they converge slightly without the glasses on.

Dr. EDWARD JACKSON, Denver: John Fiske, in his "Myths and Myth-Makers," has written beautifully about the tendency of primitive peoples to find a spirit or indwelling force in all sorts of annoying things. When a man has been killed by a knife, in certain savage tribes, the tribesmen hold an inquest and sentence that knife. Now I think we have something of a survival of that in such phraseology as "innocent, or sinning muscle." Ideas which do not depend on any logical reasoning but are largely a suggestion of the phraseology we use are the chief obstacle to a clear general understanding of this matter of ocular movements and their correction.

TINCTURE OF STROPHANTHUS AND STROPHANTHIN *

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The pharmacology of strophanthus indicates that it has certain advantages over digitalis, and careful clinical observation has sustained the view of pharmacologists that it has a distinct field of usefulness. It is a fact, however, that the average practitioner either refuses to employ strophanthus at all, or, after a brief trial, dismisses it and returns to digitalis.

We believe that the reasons for this state of affairs can be explained satisfactorily, and that the chief causes militating against the proper use of strophanthus can be removed.

One of the principal causes of the disrepute into which strophanthus fell was the utter unreliability of the tincture because of extreme variability in the strength of the seed, according to the testimony of several German investigators. It has been shown¹ that the tincture of strophanthus made by the large manufacturing houses of the United States is surprisingly uniform in potency—much more nearly uniform than is the tincture of digitalis—but American physicians are so impressed with the weight of German opinion that it is difficult to eradicate a false impression of this nature, and particularly since our friends in Germany are still reiterating the statement that tincture of strophanthus is extraordinarily variable and unreliable, though the standardized tincture is now sold there. Inasmuch as this supposed variability does not exist here, we may dismiss that phase of the difficulty.

Another serious disadvantage common to strophanthus and digitalis has been the want of a pure soluble active principle suitable for hypodermic use. This want, at

least to the extent of the pure and active principle, has been supplied in the crystallized strophanthin of Thoms.

In this connection it may be said that there is the utmost confusion in the minds of many physicians concerning the different strophanthins, and this is not surprising when even the National Standard Dispensatory gives Thoms' formula under the official strophanthin, quoting Thoms as authority. It is probable that the crystallized strophanthin is the only absolutely pure strophanthin obtainable in commerce, but the American house of the manufacturers was unable to supply this direct, but had to import it to our order. They were unable to tell us, before writing to Germany, whether the strophanthin ordinarily supplied is made by the process of Thoms. Though the official strophanthin is not an absolutely pure product, we wish to state distinctly that we do not pretend to say that it may not answer every purpose for which the crystallized strophanthin is used.

A third, and perhaps the most serious, cause of the disfavor into which strophanthus has fallen is the utter confusion concerning the dose. This naturally follows the conflicting statements regarding the toxicity of the different preparations, since the dose is sharply limited by the toxicity.

Potent remedies are almost universally recommended in minimum doses, and in strophanthin we have at once an exceedingly toxic or a comparatively mild remedy dependent on the mode of administration. Less than a milligram of crystallized strophanthin injected into a vein or subcutaneously may give rise to serious symptoms, while 150 milligrams have been given to a man by the mouth in the course of two days.

Table 1 illustrates the confusion existing regarding dosage. The figures in italics are quoted from the several authorities, the others are equivalents calculated from our comparisons of toxicity; while these equivalents are not exact, we have every reason to believe that the limits of error are very narrow. In general, 200 parts of tincture equal in toxicity one part of crystallized strophanthin, or about two parts of Merck's or Boehringer's.

Table 2 affords a comparison of the toxicity according to different investigators, and it will serve to explain the confusion regarding dosage. Digitoxin has been introduced into the table merely for the sake of comparison. It will be observed that ouabain and crystallized strophanthin, which are identical, have been found by several observers to possess the same ratio of toxicity when compared with other substances.

None of the authorities quoted has compared the toxicity of the official and the crystallized strophanthins with digitoxin on the same animal by the same mode of administration. Gley² found crystallized strophanthin, or ouabain (which is identical with the crystallized strophanthin) to be twice as toxic as the common strophanthin (and this agrees very well with our own results on mammals and those of Faust³), and eighty times as toxic as digitoxin, as determined by Koppe.

We found the toxicity of crystallized strophanthin for the guinea-pig to be about three times as great as that of digitoxin as determined by Reed and Vanderkleed.⁴ Fraenkel⁵ found digitoxin to be more than twice as toxic as crystallized strophanthin for the cat by sub-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. THE JOURNAL A. M. A., 1907, xlviii, 1177.

2. Compt. rend. Acad. sc., Paris, cvii, 348.

3. Arch. Exper. Path. and Pharmacol., xlviii, 272.

4. Am. Jour. Pharm., lxxx, 110.

5. Arch. Exper. Path. and Pharmacol., ii, 84.

cutaneous injection. We are compelled to reject Fraenkel's results altogether. In addition to an apparent typographical error in his article which has misled others, his conclusions do not bear scrutiny, for a careful examination of his protocols shows that the doses he used were not those stated in the conclusions. Attention is called to the fact because Fraenkel's work has been widely accepted.

Schulz⁶ gives the same toxic dose for the dog and rabbit and finds no essential difference in the toxicity of crystallized and amorphous strophanthins. Both these statements are wholly at variance with the results of our numerous experiments and those just quoted.

Hochheim⁷ finds, as the result of a few experiments on the rabbit, that crystallized strophanthin is "enormously toxic by vein." We have been unable to kill a rabbit with a dose nearly so small as that which he found fatal, while the dose by the stomach which we found effective is much smaller than that given by him, and whereas he found the crystallized strophanthin about 200 times as toxic by subcutaneous injection as by stomach we were able to obtain a ratio for the rabbit not very much greater than that for the cat and dog

ach. Rapid absorption occurred, with destruction of only a comparatively small amount, leading to incorrect conclusions.

This want of agreement in the toxicity of strophanthin for different animals would be of much less importance were it not for the fact that these different observers have based the therapeutic dose for man on these results without regard for the conditions which modify their results.

In attempting to find a rational basis for the dosage of different preparations of strophanthus we first determined the toxicity of the tincture, and of the official and the crystallized strophanthins, for different animals by different modes of administration, for, as previously stated, the therapeutic dose must be limited by the toxicity of a given preparation by a given method of administration.

A summary of the results of a large number of experiments is given in Table 3. The most striking fact which this table suggests is the extraordinary discrepancy between the dose of the official strophanthin, on the one hand, and of the tincture and the crystallized strophanthin on the other, if we accept toxicity as a guide to

TABLE 1.—THERAPEUTIC DOSES ADVISED BY DIFFERENT AUTHORITIES EXPRESSED IN MILLIGRAMS IN ITALICS, WITH THE CALCULATED EQUIVALENTS IN ROMAN TYPE

Authority.	Crystallized Strophanthus.	U. S. P. Strophanthus.	Tincture.
U. S. P.	0.15	0.3	30
U. S. P.	2.5	5.0	500
National Standard Dispensary.	0.1-0.15	0.2-0.3	20-30
National Standard Dispensary.	1.5-5.0	3.0-10.0	300-1000
Mercks' Index ⁸	5x6 daily	10x6 daily	1000x6 daily
Mercks' Index.	0.1-0.5	0.2-1.0	20-100
Mercks' Index.	1.5-5.0	3.0-10.0	300-1000
Schedel ¹²	5.0-10.0x3 daily	10.0-20.0x3 daily	1000-2000x3 daily
Hochheim.	5.0x6 daily	10.0x6 daily	1000x6 daily
Kobert ¹³	"proceeding too high"		
Fraenkel ¹⁴ (vein).	0.38-0.5	0.75-1.0	(unsuited)
Focke ¹⁵	1.5x2	3.0x2	300x2*
	2.1x1 daily	4.2x1 daily	420x1 daily
Bellevue Hospital	3.0-5x6	6.0-10.0x6	600-1000x6

12. Ber. d. deutsch. pharm. Gesellsch., xiv, 120.

13. Lehrbuch der Intox., ii, 1215.

14. Arch. Exper. Path. and Pharmacol., lvii, 79.

15. Therap. d. Gegenw., 1906, viii, 348.

* Focke used 5 drops twice, or 7 drops once, a day.

Ratio of toxicity of the smallest single dose advised by mouth (0.2 mg. of the official) to the highest dose given in a day (75 mgs. of the crystallized) = 1 to 750.

under certain conditions, and only about one-eighth as great as that of Hochheim. In no case did we observe as great a degree of tolerance for strophanthin by the mouth in the rabbit as that found by Maurel⁸ and Hochheim.

We shall see that the tables of toxicity for strophanthin by the mouth are of but little importance unless we know the conditions under which the poison is given.

TABLE 2.—FATAL DOSES IN MGS. PER KG.

	Cryst. Stand.	U. S. P. Stand.	Digitoxin.	Ratios.
Rabbit, st. (M'l.)....	.....	40.0	.....	.....
Rabbit, st. (H'm.)....	18.0-30.0	.....	.....	.....
Rabbit, s.c. (S'z.)....	0.1-0.2	(0.1-0.2)	.....	1:1:—
Rabbit, s.c. (H'm.)....	0.176	.....	.....	.....
Rabbit, s.c. (M'l.)....	.....	0.4	.....	.....
Rabbit, v. (M'l.)....	.....	0.3	.....	.....
Rabbit, v. (H'm.)....	0.128	.....	.....	.....
Dog, st. (S'z.)....	2.0	(2.0)	.....	1:1:—
Dog, s.c. (S'z.)....	0.1-0.2	(0.1-0.2)	.....	1:1:—
Cat, s.c. (H'm.)....	0.2 (ther.)	.....	0.08	1:—:3
G. P., s.c. (H. & V.)....	.....	.....	1.0	.....
—Mgs. to produce systolic standstill in frog.—				
Gley	0.013	0.025	.....	2:1:—
Fraenkel ....	.....	0.05	0.18	—:4:1
Faust: Onabain twice as toxic as glaber-strophanthin.				
Haynes: Tincture strophanthus 40 times as toxic as tincture digitalis.				

Haynes¹⁰ conclusions are wholly erroneous so far as the administration of strophanthus by the mouth is concerned. He used massive doses on the cat by the stom-

the dose. Thus while the doses of strophanthin and of the tincture given by the U. S. P. indicate that official strophanthin is 1,600 times as active as the tincture, we find that it is only about 100 times as active when given under similar conditions.

TABLE 3.—FATAL DOSES IN MGS. PER KG. (H. & B.)

Animal.	Cryst. Stroph.	U. S. P. Stroph.	Tincture.
Cat, m't'h.	1.0-2.0	4.0-6.0	65-1000
Dog, m't'h.	1.5	4.0-5.0	?-500-1000
Rab., m't'h.	10.0	25.0	.....
Cat subcut.	0.15	0.35	40
Dog, subcut.	0.15	0.35	40
Rab., subcut.	0.35	0.8	125
Guinea-pig, subcut.	0.3	.....	.....
Cat, vein.	0.1	0.25	35
Dog vein.	0.125	0.27	36

TINCTURE TO DOG

Tongue, 200; emesis.
Rectum, 200; def'n.
Large intestine, 30; none in 1-½ hrs.
Jejunum, 446; toxic in 55 minutes.
Ileum, 500; died in 1 hr.
Duodenum, 600; none in 1-½ hrs.
Duodenum, 1,000; died in 38 minutes.
Duodenum, 600; died in 45 minutes.
Rectum, cryst. stroph., 1 mg. per kg.; none.

The crystallized strophanthin is advised in doses from five to fifteen times as large as those of the official strophanthin, but the table seems to indicate that the amount of the official product to be given by the mouth should be twice that of the crystallized, or from ten to thirty or even fifty times that commonly advised. We can not state with sufficient emphasis that we are not prepared to advise that the dose be increased to that extent in the

6. Vierteljahr. f. gerichtl. Med., xxi, 293.

7. Centralbl. f. inn. Med., xxvii, 65.

8. Soc. de biol., 1901, p. 837.

Bio-chem. Jour., 1906, i, 62.

present state of our want of knowledge, but we do say that the evidence shows the need of careful clinical investigation of the question.

The ratio of toxicity is fairly well maintained for the two strophanthins for different animals with different modes of administration, but it is possible that the very soluble amorphous strophanthin may, under certain conditions, show a different rate of absorption from the human alimentary canal from that shown by the lower animals and may, therefore, show an extraordinary toxicity for man when given by the mouth.

When large doses of tincture of strophanthus, or the crystallized strophanthin, are given to man by the mouth, nausea, vomiting and even bloody diarrhea ensue. This prevents the further absorption of the poison and explains why death practically never results from very large doses of these substances when they have been given in this way.

The experience of Fraenkel¹⁰ and others indicates that the dose of the official strophanthin by vein is about one milligram. This is given at once and is not repeated within twenty-four hours. Table 3 indicates that about 0.4 mg. of crystallized strophanthin is equivalent to 1 mg. of the official drug by the vein.

Hochheim,⁷ in Unverricht's clinic, advised 5 mgs. of the crystallized strophanthin as the dose by the mouth, or 30 mgs. in this way as the maximum daily dose. Kobert thinks this dose is too high, basing his opinion on his own experiments on animals. The toxic equivalent of this dose seems to show that the single adult dose of the official strophanthin by the mouth should be about 10 mgs. and the full daily dose 50 or 60 mgs., but should this amount be absorbed quickly it would surely prove fatal. As previously stated, 150 mgs. of the crystallized drug, the equivalent of more than 300 mgs. of the official drug, have been given (by Hochheim) to a patient by the mouth in the course of two days; it caused vomiting and bloody diarrhea.

The amounts given in Table 3 are suggested as the basis of a rational clinical observation and not with any idea that it is the last word on the subject of dosage.

We believe that the strophanthins of Merck and of Boehringer & Sons and probably those of other makers are fairly uniform, but they are not absolutely pure crystalline bodies, and we are unable to vouch for them. Several samples of Merck's and Boehringer's strophanthin purchased at intervals of a year or more were examined and no difference in activity could be observed. So long as the crude drug can not be identified with certainty and is said to be the subject of gross adulteration, while the different strophanthins differ markedly in toxicity (or, what amounts to the same thing, in purity), it would seem that prudence demands that the manufacturers should standardize the non-crystalline strophanthins by a given method of standardization. For this purpose we would recommend that the amount required to kill a kg. of healthy normal cat within an hour, when a 1/10,000 solution in normal saline is injected at once into the femoral vein, should be taken as the unit and called one cat unit. This amount corresponds very nearly to 0.1 mg. of the crystallized drug.

The crystallized strophanthin obtained by the process of Thoms from *Strophanthus gratus* has a definite melting point and well defined solubilities. It is said to be soluble in 30 parts of absolute alcohol and in 100 parts

of water. The following observation, which was not investigated farther, is of interest in view of the fact that an alcoholic stock solution might be ordered. One part of crystallized strophanthin dropped into alcohol formed a pasty mass which dissolved only after warming, and on standing a few days it crystallized out on the sides of the bottle. The solution made of the powdered drug was permanent. The crystals shaken with so-called absolute alcohol (about 99 per cent.) for several days did not dissolve in the proportion of 1 to 100.

It would not be profitable to discuss all of our experiments in detail, but certain significant results will be considered. The cat and dog show a nearly identical degree of susceptibility, the latter being a trifle more resistant. Both of these animals vomit with such uniformity so soon as a toxic dose of strophanthin enters the circulation that it is difficult to fix the fatal dose by the mouth with any degree of precision.

In order to obviate this difficulty the effort was made to depress the vomiting center by a small dose of the tincture which was followed by a larger amount. This was wholly unsuccessful, as the animals promptly vomited as soon as a toxic dose had passed into the circulation. Morphin was then employed to depress the vomiting center of another dog, and the dose of strophanthus which would produce only vomiting under normal conditions then promptly caused death. The importance of this in therapeutics under certain conditions is obvious. In this way it was found that the single fatal dose of the tincture for the dog by mouth is about 600 to 1,000 mgs. per kg., when the tincture is well diluted with water.

A form of dilution favorable for quick absorption was then tried; the concentrated tincture or alcoholic solution of strophanthin was washed down in a little alcohol, and in this way we were able to kill or severely poison several animals with doses but little above those required by subcutaneous injection and very much less than those usually required to cause death after oral administration.

Sixty-six milligrams of the tincture per kg. proved fatal to Cat M when given in this way. A proportionate amount may be taken in the course of a day by a man in the usual way and give rise to no symptoms whatever. The cat used in this experiment was somewhat emaciated and the result was not considered wholly satisfactory on that account, but prompt emesis followed this dose given in the same way to Cats 3 and 4, and emesis occurred repeatedly in Cat 4. This shows that the amount absorbed was not very far from the fatal dose and might well have proved fatal had emesis not followed. Furthermore, it may be stated in support of the result with Cat M that a sick rabbit was repeatedly injected with large doses of strophanthus and only succumbed to a dose which would prove fatal to a normal rabbit.

EXPERIMENT 1.—March 24, 1908: Cat M, male, weight 1.1 kg., has been the subject of a number of experiments and is very much emaciated. Had been used for strophanthus one week previously. 3:15 p. m.: 0.066 c.c. tincture strophanthus per kg., diluted with a little alcohol, washed down with 1 c.c. alcohol, 5:45 p. m.: Cat lies down, but is able to get about.

March 25: Cat found dead.

The rabbit is somewhat more tolerant than the cat or dog when the drug is injected subcutaneously, and very much more so when it is given by the mouth. The white rat is extraordinarily tolerant whether the poison be given by the mouth or subcutaneously; thus the equi-

alent of 70 mgs. per kg. of crystallized strophanthin was injected subcutaneously in one case without producing any perceptible effect, while another white rat weighing only 156 gms. ate 100 mgs. with his food without ill effects.

Disintoxication appears to be more rapid in the case of the rodents than with the cat and dog, for the rat was seen to return to the poisoned food after brief periods of depression, and the rabbits ate with avidity in a few hours after a nearly fatal dose by subcutaneous injection, while the effects of large doses were observable for several days in the cat and dog.

The difference in toxicity seen after slow and rapid absorption seemed to support the explanation of von den Velden¹¹ that the lesser toxicity of the digitalis bodies by the mouth is due to a slower absorption. That this does not suffice to explain the differences seen with strophanthin is shown by the results of experiments 2, 3, 4 and 5. In experiments 2 and 3 a very dilute solution of the crystallized strophanthin (1:250,000) was slowly injected into the femoral vein; although free diuresis resulted from the injection of such a large amount of normal saline, the fatal dose of strophanthin was but little more than that which the animal survived for more than two hours in experiment 4, in which the solution, 1:10,000, was injected at once into the vein, and the single dose given in experiment 2 was the same as that which proved fatal with slow injection in experiment 4, but this is explained in part by the excess of fat.

If by "slower absorption" von den Velden would have us understand the failure to absorb the greater portion of a dose during its passage of the entire small intestine, then his explanation must be accepted as probably correct. This is failure to absorb, rather slow absorption, in the usual acceptation of the expression.

EXPERIMENT 2.—April 18, 1908: Dog 4, male mongrel, weight 14.85 kg., excessively fat.

10 a. m.: 0.01 gm. morphin sulphate per kg. subcutaneously.

10:15 a. m.: Light ether anesthesia. Cannula into femoral vein.

10:18 a. m.: Ether withdrawn.

10:42 a. m. to 12:05 p. m.: 1/800 mg. per kg. per minute of crystallized strophanthin in normal saline (1:250,000) injected into vein.

12:05 p. m.: Injection stopped, and dog died in about fifteen minutes.

Total dose: 1.58 mg. or 0.105 mg. per kg.

Total normal saline: 400 c.c. or 27 c.c. per kg.

EXPERIMENT 3.—April 18, 1908: Dog 5, male, good condition, weight 7.4 kg.

2:05 p. m.: 0.01 gm. morphin per kg.

2:15: Ether, light anesthesia. Cannula into femoral vein.

2:30 to 5:13 p. m.: Injection as in Experiment 2 till death of animal.

Total dose: 1.3 mg. or 0.175 mg. per kg. crystallized strophanthin.

Total normal saline: 325 c.c. or 44 c.c. per kg.

Time of injection: 2 hours 43 minutes.

EXPERIMENT 4.—April 20, 1908: Dog 6, fox terrier, fine condition, weight 8.5 kg.

1:10 p. m.: 0.01 morphin sulphate per kg. subcutaneously.

Ether as in Experiment 2. Cannula into femoral vein.

1:38 p. m.: 0.1 mg. crystallized strophanthin per kg. into vein.

3:48 p. m.: 0.025 mg. per kg. as before.

4:01 p. m.: Animal died.

Total dose: 0.125 mg. per kg. in 10,000 parts normal saline.

EXPERIMENT 5.—April 24, 1908: Dog 8, female, mongrel, weight 7.65 kg.

11:25 a. m.: 0.01 gm. morphin sulphate subcutaneously. Ether for light anesthesia. Cannula into femoral vein.

12:07 to 12:42 p. m.: 100 c.c. (1:100,000) strophanthin (1 mg.).

12:57 to 1:07: 10 c.c. (1:100,000) strophanthin (1/10 mg.).

1:22 to 1:29 p. m.: 10 c.c. (1:100,000) strophanthin, (1/10 mg.).

1:44 to 1:49 p. m.: 5 c.c. (1:100,000) strophanthin (1/20 mg.).

2:14 to 3:10 p. m.: 58 c.c. (1:100,000) strophanthin (58/100 mg.).

3:14 to 3:25 p. m.: 18 c.c. (1:100,000) strophanthin (18/100 mg.).

4 to 4:49 p. m.: 45 c.c. (1:100,000) strophanthin (45/100 mg.).

4:49 p. m.: Dog died.

Total duration of injection: 4 hours 42 minutes.

Total dose: 246 c.c., 2.46 mg. strophanthin.

Dose per kg.: $+ 2.46 - 7.65 = 0.322$ mg.

This method always gives results somewhat too high, and if 20 per cent. of the lethal dose is destroyed in the time of the experiment it gives 0.27 mg. per kg. This is almost the exact fatal dose by vein when given at once.

This is also shown in the case of the official strophanthin. In experiment 5 a dog received 0.322 mg. of official strophanthin by the vein in the course of nearly five hours. Since the animal organism is capable of destroying almost the full lethal dose in twenty-four hours, we should expect the effective dose in this case to be at least 20 per cent. higher than when the injection is made at once. This would indicate that 0.27 mg. is the fatal dose of strophanthin by the vein for the dog. This is almost precisely the effective dose when given at once by the vein.

Curarin and antiarin are said to be destroyed in the liver, and this source of destruction of strophanthin, of course, presented itself to our minds. That the liver does not destroy strophanthin in amounts sufficient to account for the lessened toxicity by the mouth is shown by comparing the results of experiments 3 and 6. A dilute solution is just as toxic when injected slowly into the splenic vein as when it is injected into the femoral. In fact, the animal which received the injection into the splenic vein succumbed to a slightly smaller dose, but the difference lies wholly within the limits of ordinary variation.

EXPERIMENT 6.—Female fox terrier, quite fat, weight 10.35 kg.

10:25 a. m.: 0.01 gm. morphin sulphate per kg. subcutaneously.

10:45 a. m.: Light ether anesthesia. Cannulas into carotid artery and splenic vein.

11:34 a. m. to 1:54 p. m.: Injection as in Experiment 3 of crystallized strophanthin, 1 to 250,000 normal saline.

1:57 p. m.: Animal died.

Total dose: 1.52 mg. or 0.147 mg. per kg.

Time of injection: 2 hours 29 minutes.

Peptic and activated pancreatic digestants, as well as bile, were found to exert only an unimportant influence on the toxicity.

When a large dose of strophanthin was injected directly into the duodenum an amount equal to ten times the fatal dose by vein disappeared from the lumen of the small intestine in the course of an hour and a half without causing toxic symptoms in the dog, while the solution remaining unabsorbed in the small intestine retained its toxicity, as shown by injecting it into a cat subcutaneously. The cat promptly died with typical symptoms.

From this it appears probable that strophanthin is destroyed in part in the intestinal canal when the drug is taken by the mouth, but that rapid absorption may take place is shown by the results of experiments already quoted, and by one in which a large amount was introduced directly into the duodenum and death with typical symptoms followed in thirty-eight minutes.

While one of us (R. A. II.) has concerned himself chiefly with the questions of dosage and the factors which modify this with different methods of administration, the other (II. C. B.) has made a number of clinical observations on patients in Bellevue Hospital. The results of these observations will be the subject of a subsequent communication, but the point to which we now wish to draw attention is the subcutaneous injection of strophanthin.

Dr. Bailey employed the official strophanthin, dissolved in sterile salt solution, in one case, but for the most part the crystallized strophanthin was used. This was dissolved in 4,000 parts of salt solution, which was then sterilized by boiling, and the appropriate dose—0.3 to 0.5 mg.—was put into sterile serum tubes and the latter sealed in the flame. This solution was injected deeply into the gluteal muscle once in twenty-four hours. It gave rise to a slight degree of pain lasting about an hour, which was never sufficient to prove a serious objection to its use in this way. No side actions, such as described by Fraenkel, were seen in any case. The action was more prompt than could be elicited by 1 c.c. of the tincture given by the mouth every four hours—6 c.c. in the twenty-four hours.

CONCLUSIONS

The dosage and the proper mode of exhibiting strophanthus and strophanthin require clinical investigation. The action of strophanthin may be elicited promptly in suitable cases by injecting it subcutaneously. Three-tenths to half a milligram of the crystallized strophanthin in sterile (boiled) salt solution, 1/4000, may be injected deeply into the gluteal muscle once in twenty-four hours without fear of abscess formation or other side actions.

The single adult dose of crystallized strophanthin by the mouth is about 5 mgs. or less, the daily dose 30 mgs. or less. The single adult dose of the official strophanthin by the mouth is probably about 10 mgs., and the daily adult dose by the mouth is probably about 60 mgs., but the latter dose should not be used until we have further clinical experience concerning the various factors governing its absorption.

The action of tincture of strophanthus by the mouth and the factors modifying its absorption require further clinical study. Uniformity of action can only be secured by uniform absorption, and this is influenced by the menstruum in which the drug is given and the condition of the alimentary canal at the time of administration.

It is quite possible that diet may influence the absorption of strophanthin in the human alimentary canal, so that man may at one time resemble the rodent and at another time the carnivorous animals (cat and dog) in susceptibility to strophanthin.

ABSTRACT OF DISCUSSION

DR. TORALD SOLLMANN, Cleveland, Ohio: This paper explains why strophanthus has not received the popularity to which one might suppose it entitled. I think that clinicians have been extraordinarily wise in not relying on a drug about

which so little is really known. Yet strophanthus contains great capacities for good and it is to be hoped that investigations such as Dr. Hatcher's will be carried still further. These investigations tend to substitute definite for indefinite knowledge. The dose now varies anywhere from 1 to 1,000. I believe that if these investigations are continued, strophanthus will prove to be a very important drug.

Dr. C. W. EDMUNDS, Ann Arbor, Mich.: The report of the uniformity of strophanthus tinctures did not agree with the results I obtained last year. I found that strophanthus tinctures varied exactly the same amount that the tinctures of digitalis varied; that is, the fatal dose in one preparation was 0.0012 of a cubic centimeter, in another 0.0025, in another 0.005, in other words a ratio of 1 to 4. In regard to the difference in toxicity between tincture of digitalis and strophanthus, the results I obtained with tincture of strophanthus, taking the average of all the preparations studied, showed that strophanthus was about sixty-seven times as toxic as digitalis, which agreed fairly well with Haynes' results. He compared 2.5 per cent. tincture of the British Pharmacopeia with a 12.5 per cent. digitalis tincture. I forget his exact figures, but I think he found a ratio in toxicity of about 12 to 1, which, multiplied by 5 on account of the difference in strengths of the two tinctures, would make his figures agree pretty closely with mine.

Mr. M. I. WILBERT, Philadelphia: The figures mentioned by Dr. Edmunds a few moments ago are further emphasized by the suggestions of Dr. Hatcher on the variability of the sources of strophanthus. The drug strophanthus has been before the medical public for upward of forty years, and has received ample recognition in the voluminous literature that has been published since 1873, when Dr. Frazer read his first paper on this drug. It is evident that the majority of medical men do not feel safe in using strophanthus. This feeling of uncertainty, evidenced by the fluctuating use of strophanthus, is, no doubt, largely due to the irregularity in the source of the seed. The Pharmacopeia gives *Strophanthus kombé* as the only source of drug from which the official tincture of strophanthus can be made. As a matter of fact, *Strophanthus kombé* was, for a number of years, practically out of the market. The annual reports of European drug houses have repeatedly called attention to the fact that the supply of *Strophanthus kombé* was meager and that the available drug was frequently mixed with other, more or less inert, seeds. In a recent paper by Professor Gilg, read before the Pharmaceutical Society in Germany, he suggests that *Strophanthus hispidus* be made the official source. *Strophanthus hispidus* is cultivated in a number of places in South Africa, is readily controlled and always comes into the market of uniform quality. We have reason to believe that *Strophanthus gratus* is the source of crystalline strophanthin, which, as Dr. Hatcher has pointed out, is identical with ouabain, a glucosidal substance obtained from the wood of a species of *Acocanthaceae*, and is at least twice as strong as the official strophanthin. Here is a possible complication that should be guarded against. I think it would be unfortunate indeed if *Strophanthus gratus* should be generally confounded with the official strophanthus. In addition to this complication with the seed we may also have the same complication in connection with the active principles. At the international conference held in Brussels in 1902 for the unification of the formulas for potent medicaments, the delegates present were so uncertain about the origin of strophanthus that the committee did not include the origin or the description of the seed in the final protocol, despite the fact that it did include the tincture. The proposed international tincture of strophanthus differs from the U. S. P. tincture in the strength of alcohol to be used in the percolation of the drug and that is another point which may be of importance. The international tincture is more readily made, the drug is more thoroughly exhausted, and the finished preparation stands up better and remains clearer longer than the corresponding U. S. P. preparation. The international menstruum represents 75 per cent. alcohol, while the menstruum directed in the United States Pharmacopeia represents about 65 per cent. of alcohol.

DR. E. M. HOUGHTON, Detroit: I am particularly glad to note that Dr. Hatcher's statements relative to the toxicity of strophanthus coincide almost exactly with those I made in a paper before this section ("The Pharmacologic Assay of the Heart Tonics," *THE JOURNAL*, Oct. 22, 1898), I think exactly ten years ago. I pointed out that the toxic dose of the strophanthins on the market varied from 1 to 90; in other words I found with different samples of strophanthin obtained in this country and Europe one strophanthin ninety times as strong as another. At the same time I called attention to the variability in the activity of tincture of strophanthus and preparations of digitalis, and proposed a method of determining the activity of the heart tonics and especially of the tincture of strophanthus. I used as a standard 0.00015 c.c. tincture of strophanthus per gram body weight of frog as the minimum fatal dose when injected into the abdominal lymph sac.

Since then it has been my privilege to examine or have examined hundreds of samples of tincture of strophanthus, and I have adhered to that standard. I have in course of preparation just now a paper on the heart tonics, in which I shall enter more fully into the question of standards for digitalis and strophanthus. I have found the tincture of strophanthus prepared according to the seventh revision of the U. S. P. approximately ten times as active as the corresponding fluidextract of digitalis. In other words, the standard I have adopted for 5 per cent. tincture of strophanthus, 0.00015 c.c. per gram body weight of frog, is exactly one-tenth that for fluidextract of digitalis (0.0015 c.c.), when similarly injected.

Examination of these figures shows that strophanthus is two hundred times as active as digitalis, in terms of crude drug. It seems to me from the very large number of samples examined of different preparations of these two drugs that the figures just cited as standards for their strength are reasonable as representing the activity of average samples of first-class drug.

DR. ROBERT A. HATCHER, New York: The difference in toxicity of strophanthus and digitalis is largely based on the length of time required. It is well known that digitoxin reacts slowly. It will probably take two hundred times as much digitoxin as of strophanthin to kill in an hour, but if you take the minimum fatal dose, regardless of time, the difference is much less. Fraenkel found that the minimum fatal dose of digitoxin did not kill within eight days (cat). An enormous dose is required to kill within an hour, whereas ouabain is quickly fatal in minimum fatal doses. That is probably why Heddbom, experimenting on frogs, found ouabain eighty times as toxic as digitoxin. As to variability of the tincture, I do not deny that it may exist, but there is no excuse for any one's failure to obtain reliable preparations, and we can obtain reliable preparations of strophanthus without limiting ourselves to those of one manufacturer. I compared the tincture made by Burroughs, Wellcome & Co. with those of Parke, Davis & Co. and Squibb, and with those made from seed obtained from Gilpin, Langdon & Co. and one from a specimen of seed that had been in our laboratory for nearly twenty years, and all were found to be of practically the same strength. Samples were purchased of the east side drug stores in New York and the better class of stores were purposely avoided. There is no reason why the crystalline strophanthin should be confused with the official, but the difference in toxicity has not been sufficiently emphasized. Ouabain is the most toxic; strophanthin, which is methyl ouabain, is about one-half as toxic, and aconantherin, which is dimethyl ouabain, is about one-fourth as toxic; this is very suggestive as to the effect of methyl groups on the toxicity. There is absolutely no reason why crystalline strophanthin should not be prescribed. I believe that Dr. Edmunds must have used much larger doses of digitoxin than the minimum fatal. There is certainly no such difference in the toxicity of strophanthus and digitalis as suggested, for no one could use 3,000 (50 × 60) minims of tincture of digitalis daily without effect. Haynes states that strophanthus given by the mouth is fifty times as toxic as digitalis, but that is absolutely untrue, at least under ordinary conditions.

DEPARTMENTS OF HYGIENE UNDER BOARDS OF EDUCATION *

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In the modern scientific business life the technical business expert has a permanent place. The erection of a city structure involves the cooperation of engineering and architectural experts as never before. Electric and mining work involves groups of experts, each connected with some special phase of the subject. School boards have had new problems thrust on them, and the employment of business agents and building experts has become indispensable. It is my belief that the group of problems centering about the health of school children demands technical treatment as highly specialized as that required for other departments. A few statements of fact will bring out the necessity of the measure here advocated.

On good eyesight depends to a large degree one's ability to conduct successfully the affairs of life. Notwithstanding the great damage or degeneration that the vision of American school children is constantly undergoing, there is hardly a school board in America that has in its employ a technical expert to decide on questions relating to eyesight. School-books are adopted, but no standards have been established based on adequate research as to the length of lines for the various ages, size of type, size and stroke of letter in connection with the lines, the width of the margins, the use of half-tones as compared with outline drawings, the use of dead-finished as compared with coated paper, and similar questions. There are authorities on many of these matters, but we have no experts in the employ of departments of education who can speak authoritatively from the standpoint of special study made of these conditions as they exist in American schools.

This extraordinary condition with reference to the problem of vision does not stand alone. Through the school we have changed the life of the child from one of predominant activity to one predominantly sedentary in character. During five hours of the school day for ten months in the year children are obliged to be seated for the major portion of the time. So extensive a readjustment of the life habits of the young of a species has never before taken place. Its effects on digestion, circulation, nutrition and posture are as yet unknown. Yet there is not employed by any board of education in America one expert to make a special study of this group of problems centering about the changed conditions of life as they exist under the conduct of the modern school.

The returns from examinations made by competent physicians in all parts of America indicate that there are many children in all parts of America whose school progress is hindered and whose prospects in life are lessened by hypertrophied tonsils and adenoids; and yet up to the present time there is not employed by a department of education in America a technical expert to study the reasons for the occurrence of such growths, particularly as related to school life, or the means of prevention. The only thing that is being done is to attempt to operate on the tonsils and adenoids after they have grown.

* A paper prepared for the Section on Hygiene and Sanitary Science of the American Medical Association, Chicago Session, 1908, but not read.

We know that growth is more fundamental than education; that when educational demands are too severe, growth is interfered with; yet there is not a school in America that systematically weighs and measures its children to ascertain whether or not they are growing normally, and then readjusts the school tasks to fit this fundamental physiologic condition.

We know that nervous diseases among children are increasing. We believe that these disorders are related to the increased tension on the children. Many believe that this is due in part to the tasks imposed by school life, and yet there is not a board of education in America that is employing an expert to ascertain the facts with reference to these problems.

The fatigue of overwork, the fatigue resulting from home study—these we all recognize to be serious clogs on development; and yet our courses of study all over America are constructed without the guidance of experts whose authority is based on investigation of these matters.

These are some of the facts which lead us to believe in the employment by departments of education of technical experts who shall work on these problems—experts who shall have power with reference to these matters, just as other experts in the employ of the departments of education have power with reference to their special lines. School buildings are not erected without the direction of expert architects. The recognition of the technical expert in medical lines is just as necessary as it is in architectural lines. It is not sufficient to secure the best available authority on these subjects. No oculist, no group of oculists at the present time possesses the information needed to answer the questions that arise in connection with the vision of school children under school conditions. It is a specialty within a specialty. We do not need authority; we need evidence. And then we need power within departments of education to see that the fundamental condition of successful human life, namely, health, is properly conserved. To this end there should be organized under every board of education a department of school hygiene having adequate financial support and administrative power.

It may be safely affirmed that until this is done, until the school itself attacks these problems with the implements of science, no contribution of permanent value to physical development will be made in the field of education. Obviously the detection of contagious disease in the schools, involving daily visits and the power of the law to act, belongs in the nature of the case to the board of health. Quite as obviously also the care of ventilation, recesses, lighting, seating, exercise, hours for home study, must rest with the board of education. In other words, where the object is the protection of the community the board of health is responsible, and where steps necessary to the proper education of the individual are concerned the board of education is responsible. If these propositions are true they leave but one division of the topic open to discussion, namely: who should conduct the examination of school children for defects likely to interfere with proper growth and education, such as adenoids, defective eyesight and hearing?

Whoever does this work, it is further obvious that such records must follow the child from grade to grade and also from school to school; that they must be considered by the grade teachers, and, most important of all, that each case must be consistently followed up, so that, as far as possible, such disabilities may be re-

moved; that is, they are an important part of the school records and must be so made and organized as to be available to the school authorities. So the board of education must at least be one of the active parties in such medical examination.

1 Madison Ave.

THE CAUSES AND THE TREATMENT OF BACKACHE IN WOMEN

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Backaches in women are so common and so far-reaching in their effects that a thorough understanding of them is of the greatest importance to members of the medical profession, to say nothing of their patients. A much too large number of women are its victims. Much of the hysteria and neurasthenia from which they suffer appears to be caused by the nervous leak due to the constant backache, much in the same way that eyestrain gives rise to headaches and other nervous disorders. Yet, if we turn to our text-books, we find practically nothing on the subject.

CAUSES

First, we must determine the cause of the backache. The causes of backache below the dorsal region are numerous, and it is essential for success in its treatment that its origin be accurately diagnosed. The causes are rheumatism, strains, neuralgia, sacroiliac disease, caries of spine, fracture of spine (especially of the coccyx), hemorrhoids or other rectal disease, pendulous abdomen, disease of any of the internal pelvic organs and cellulitis of the uterosacral ligaments.¹

It is especially with the last two that this paper has to deal.

As a matter of fact the question commonly arising is whether the cause of the backache is pelvic disease, or if it is a strain or rheumatism. The backache of rheumatism and strains are usually seated in the lumbar muscles; and in the former, the pain often radiates down the sciatic nerve. In rheumatism and strain the backache is increased by bending forward so as to put the lumbar muscles on the stretch. This has no effect on the pelvic forms of backache.

Pelvic backache is of two kinds. In one there is pain and tenderness at the fourth and fifth lumbar vertebrae, where the spinal nerve center governing the internal pelvic organs is situated. This pain and tenderness may be due to any painful disease of the internal genitals, and is simply a protest on the part of the center against being constantly irritated. The treatment of this form, to be permanently efficacious, necessitates the cure of the underlying disease.

In the second variety there is a tender spot on either side of the second sacral vertebra, which, it is my contention, is due to cellulitis of the uterosacral ligaments. I shall state my grounds for this theory later.

There are two diseases that might be mistaken for the pelvic forms of backache if only the site of the pain were considered. One is incipient sacroiliac disease; this gives rise to pain and tenderness at the sacroiliac joint, but it is rarely bilateral, and concussion of the iliac bone

1. Besides these conditions, Satterthwaite, of Boston, describes conditions of softening of the sacroiliac cartilages occurring at the menstrual period, analogous to that which occurs during pregnancy, also strains and subluxations of these joints.

gives rise to pain. The other is caries of the fourth or fifth lumbar vertebra. This, however, is accompanied by some spinal rigidity, and a jar, such as is caused by having the patient jump, greatly aggravates the pain.

Neuralgia is not so sharply localized, and gives rise to a more intense, usually intermittent pain, instead of a dull, constant ache. In rectal inflammations and fracture of the coccyx the pain is referred to the coccyx. In pendulous abdomen, often associated with general enteroptosis, there is a dull, constant dragging pain referred to the lumbar region; probably due to the traction of the mesentery on the spine. This variety is temporarily relieved by causing the patient to lie down, and permanently by wearing an abdominal supporter.

BACKACHE DUE TO CELLULITIS OF THE UTERO-SACRAL LIGAMENTS

The sole variety of backache that is found only in women is that due to cellulitis of the uterosacral ligaments; as that due to irritation of the spinal center is duplicated in the male in prostatic and other genito-urinary troubles.

Having eliminated the causes of backache common to either sex, we next, by vaginal examination, endeavor to determine which organ is at fault.

To determine which organs give rise to backache, I examined a number of women with this symptom. I find that pressure on an inflamed ovary gives rise to pain and a sickish feeling; the pain is not referred to the back. Pressure on the inflamed uterus likewise gives pain, but not in the back. Pressure over the inflamed uterosacral ligaments, however, gives rise to severe pain in the back at the outer sides of the second sacral vertebra. Pulling the uterus forward, thus putting the ligaments on the stretch, also gives rise to the pain. Now, the fact that the uterosacral ligaments are attached to the sides of the second sacral vertebra seems to make a complete and damaging case against these offenders.

The uterosacral ligaments have been described under several names, but the descriptions are usually inadequate. They have been known as the retractor muscles of the uterus; and, with their peritoneal covering, as the sacrouterine ligaments. They have been described as folds of peritoneum, and as muscles. Briefly, they consist of muscle tissue which is in direct continuity with that of the uterus, together with connective tissue, blood vessels and nerves. They arise from the posterior wall of the uterus at the level of the internal os, and diverge outward and backward on each side of the rectum and are inserted on the sides of the second sacral vertebra. They are partly covered with peritoneum which is in direct continuity with that covering the uterus, and which merges into the peritoneal coat of the upper part of the rectum, and is known as the uterorectal ligaments. These form the posterior and lateral borders of the cul-de-sac of Douglas.

These ligaments may be the seat of an acute or chronic inflammation. In acute cellulitis they are much thickened, because of the enlarged blood vessels, exuded serum, etc., as in all inflammatory conditions of cellular tissue. This may end in resolution, in suppuration, or may become chronic. The chronic variety is of two kinds. In the first the ligaments may be as thick as a finger on account of hyperplasia of the tissue elements. In the second the ligaments are barely thickened, but much shortened, drawing the uterus close to the sacrum.

Inflammation of the uterosacral ligaments is known as parametritis posterior, and as cellulitis of the uterosacral ligaments. For the four varieties I have described I will suggest the following names:

1. Acute cellulitis of the uterosacral ligaments.
2. Acute suppurative cellulitis.
3. Chronic hypertrophic cellulitis.
4. Chronic atrophic cellulitis.

As above described, these forms may run into one another, being but stages of the disease. Thus the chronic hypertrophic may by cicatricial contraction result in the atrophic.

The causes of the acute forms are pelvic infection of any kind. They are rarely independent diseases, but are associated with cellulitis of the broad ligaments, etc. I shall not describe this disease in detail, as it is well known.

The chronic forms may follow the acute, or may come on gradually from slight septic absorption from the uterus; for instance, from an old laceration, or erosion, or gonorrhea, or following childbirth. The uterosacral ligaments may also become inflamed as part of a pelvic peritonitis or extension of inflammation from a diseased ovary which is adherent to them. It is this chronic cellulitis of the uterosacral ligaments that gives rise to the interminable backaches which usually are so little benefited.

VARIETIES AND TREATMENT

The common treatment they receive in our large hospitals is a curetting for the endometritis which so often accompanies this condition, and the patient leaves little, if at all, benefited, so far as the backache is concerned.

The symptoms in an uncomplicated case are backache referred to the two spots described, which becomes worse on exertion, especially sweeping. There is a distressing sense of weakness. Sexual intercourse is often painful, on account of pressure on the inflamed ligaments, and so leads to incomplete intercourse, and frequently to repugnance to it, thus indirectly again becoming a factor in the neuroses of women.

The diagnosis by vaginal examination is easy if a few facts are borne in mind, viz.: The normal uterosacral ligaments are felt as thin bands at the sides of the cul-de-sac of Douglas and can be made much more prominent by pulling the cervical portion toward the pubic bone. Pressure on them is painless. Normally, the ligaments are so elastic that the uterus can be brought forward bimanually until arrested by the pubic bone. This again is painless.

In acute cellulitis a considerable exudate forms rapidly in one or more frequently, both ligaments. The ligament feels hard and is very tender. Any attempt to move the uterus forward gives rise to acute pain, especially in the back. There is usually fever, varying in intensity with the virulence of the inflammation.

If the mass suppurates, the fever rises, and chills are apt to occur. The mass now feels more boggy, a soft spot being present with harder surroundings. Fluctuation is rare, being present only if the suppurating focus is very large, or when it is pointing in the vagina.

In hypertrophic cellulitis the ligaments feel thickened, sometimes to the size of a finger, and are inelastic. Pressure or traction on them gives rise to the characteristic backache.

In the atrophic variety the shortened ligaments, dragging on the uterus at the level of the internal os, bring

this portion close to the sacrum and thus often produce an antelexion. The shortened ligaments interfere with the mobility of the uterus in all directions, and attempts to move it give rise to backache.

The treatment of acute cellulitis is to put the patient to bed, apply an ice-bag to the lower abdomen and administer active saline cathartics. Locally, tampons dipped in 5 per cent. iodine-glycerin are useful, and hot vaginal douches may be given, although I think their usefulness has been overrated. Besides this, the cause if still present must be removed. If suppuration occurs, or before in a severe case, the mass should be incised by vagina and drained, care being taken not to enter the peritoneal cavity.

In mild cases of the chronic variety painting of the posterior vaginal fornix with tincture of iodine two to three times a week, also 5 per cent. ichthyol-glycerin tampons, or vaginal suppositories inserted at night are useful. If by this means we do not get sufficient absorption, pelvic massage may be added. This is applied in two ways: First, by stretching the ligaments gently by bimanual traction of the uterus toward the pubis, never using force enough to give much pain; and, second, by pressure against the ligament with the first and second finger of the left hand in the vagina; the right hand depressing the abdominal wall until the ligament can be pressed on from above. Small rotary movements with the right hand are now made for five to ten minutes. The object of this is to promote absorption, and to lengthen the ligaments. This method produces fairly good results, but rarely removes the backache completely; and must be persevered in for several months. Besides it is somewhat painful.

To overcome these objections it occurred to me that section of the uterosacral ligaments would be a rational treatment, and one fraught with little danger.

REPORT OF CASES

I report in detail two cases, one in which the operation was performed by vagina, and the second by laparotomy:

CASE 1.—Last summer a young woman came to me from Boston, and, as hers was an extremely bad case, I used this method on her.

Patient.—Miss G. was 25 years old, anemic and somewhat slight, a semi-invalid on account of severe backache with neurasthenia. She could walk only from three to four blocks before becoming exhausted.

History.—The patient stated that her illness was of seven years' duration. No definite etiologic factors could be elicited. During this period she had had extreme backache and general weakness. She had been put to bed and treated for long periods by homeopathic, osteopathic, mental science and regular practitioners, but with only transitory amelioration of her symptoms.

Examination.—Vaginal examination revealed an antelexion with some enlargement of the uterus. Ovaries and tubes were normal. The uterosacral ligaments were shortened, inelastic and about the thickness of a lead pencil. The ligaments were very tender to the touch and pressure on them gave rise to the characteristic backache each side of the second sacral vertebra.

Diagnosis.—The diagnosis was antelexion, chronic metritis, and chronic uterosacral cellulitis in a transitional stage from the hypertrophic to the atrophic variety.

Operation.—I sent the patient to St. Mark's Hospital and had her prepared for operation. The uterus was dilated and everted. A transverse section extending through the vaginal wall was then made in the posterior vaginal fornix, close to the uterus, about two inches in length. The cellular tissue was separated by the fingers and the cul-de-sac of Douglas opened. The ovaries were palpated and a few fine adhesions to

the right one severed. Next, a Polk's handled needle was threaded with No. 3 catgut, and a ligature thrown around the right uterosacral ligament close to the uterus. A second ligature was inserted more posteriorly, and the ligament cut between with a pair of scissors. The same procedure was followed on the opposite side, and the vaginal incision sutured. The insertion of a perforated stem-pessary into the uterus completed the operation.

Postoperative History.—For three days after the operation there was considerable backache which afterward disappeared. Two weeks after the operation the patient left the hospital. I kept her under observation for two weeks more, during which time she took walks miles in length and avowed she had no pain whatever. I am informed by letter that the patient at this time continues to be free from backache, has gained in weight, and is strong and healthy.

CASE 2.—**Patient.**—Mrs. W. had suffered for years with severe backaches of both varieties, headaches and dysmenorrhea often confining her to bed.

Operation.—I performed a laparotomy, enucleated about a half dozen fibroids from the uterus, removed the right ovary, which was cystic, severed the uterosacral ligaments and performed a ventral suspension.

Postoperative History.—Recovery was uneventful, and the patient's condition is now excellent.

ANSWER TO POSSIBLE OBJECTION

The objection to the operation might be made that the uterosacral ligaments are an important support of the uterus, and that severing them might lead to prolapse of that organ; but the peritoneum holds the divided ends of the ligament from dropping too far apart, and the gap must eventually be filled by a nerveless fibrous tissue. The final result will be the same as in the section of a tendon of the eye for strabismus, namely, the tendon becomes longer. Backaches in women are so common and distressing in result that it is the duty of the physician to do all in his power to relieve them. The operation which I shall call section of the uterosacral ligaments should be safe in skilled hands, and if on further trial it gives anything like the relief it did in the cases cited it should be used to combat pain and disease.

11 West Eighth Street.

TYPHOID AGGLUTININ REACTION IN A CASE OF EPIDEMIC CEREBROSPINAL MENINGITIS

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AND

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Laboratory workers who have dealt extensively with experiments in agglutination have felt doubt at times as to the reliability of a given reaction, away from associated clinical findings. With the knowledge of the agglutination phenomenon is essentially a qualitative one, the question arises: Is the dilution of serum too large for the feebly developed agglutinins from the normal and from co-agglutinins or group agglutinins? This question of dilution becomes particularly important in cases of evident mixed infection.

While, with relatively high dilutions, the less strongly developed normal agglutinins and co-agglutinins usually ruled out, there still remain a number of cases in which the results are decidedly at variance with

specific reaction with the ordinary laboratory technic, as is illustrated in the following case:

Patient.—Max M., laborer, aged 40, Hungarian, came to this country two years ago. He had had no illness of any kind during the last year.

Present Illness.—The patient had been working daily during that period. On April 10 or 11, 1908, he began to feel moderate general malaise. This malaise, however, did not keep him from going to work. On Thursday, April 16, he failed to report for breakfast. Attempts to arouse him were futile. He was removed from the boarding house to the Emergency Hospital. During the first twelve hours of his stay at the hospital he was semiconscious, and complained of excruciating headache. Delirium followed. The abdominal walls were rigid, especially on the right side. On Friday, April 17, the same symptoms with additional opisthotonus were present, and on Saturday the same symptoms with additional development of internal strabismus. The blood serum was now examined for typhoid agglutinins by Dr. George C. Ruhland, of the Milwaukee Health Department, with positive results, the details of which are described below. On Sunday, April 19, there was profound comatose delirium and development of râles of a moderately moist character on the right side and "moderate" albuminuria. Death ensued Monday morning, April 20. (We are indebted for this report to Dr. Alexander McKinley, of the Emergency Hospital.)

Necropsy.—April 20, 1908. (Irrelevant factors are omitted.) The body was still warm, with no development of rigor mortis. There was marked internal strabismus. The sclerae of both eyes showed a diffuse reddening and were studded with discrete petechiae.

Cranial Viscera.—When the skull was opened the subdural space was seen to be tensely filled with fluid. Puncture of the dura caused a gush of a considerable quantity of slightly red, sanguinolent, cerebrospinal fluid. The entire convexity of the brain was covered with a more or less thick, fibrino-purulent material, of a greenish-yellow color. Its consistency was greater in the recesses than on the apices of the gyri. The volume of this exudate increased in direct proportion with the blood supply. It was, therefore, most copious at the base of the brain. There was intense congestion of the pia mater. The brain substance, proper, showed little involvement to the naked eye. The coverings of the spinal cord were in a similar condition, but to a slighter degree. Microscopic examination of the smears showed numerous Gram-negative, intracellular and extracellular diplococci, resembling, to a certain degree, the gonococcus. There were no cells, however, that contained more than two pairs of the micro-organisms, the *Diplococcus intracellularis* of meningitis. Careful scrutiny of the entrance points of the blood vessels into the cranial cavity did not reveal the avenue of infection.

Abdominal Viscera: The peritoneum was smooth and glistening; the omentum covered all of the small intestines. The peritoneal blood vessels were negative. The situs of the abdominal viscera was negative. The bladder was distended with urine and protruded 8 cm. above the symphysis pubis. The mesenteric lymph nodes were just perceptibly increased, in no way approximating the degree of enlargement found in typhoid convalescence therefrom. The spleen measured 10 by 6.5 by 3 cm. It was negative. The liver was slightly increased in size. It cut smoothly and was of a brownish-purple color. The hepatic veins were patent and distended; there was venous congestion. Both kidneys showed normal dimensions and were otherwise negative.

Thoracic Viscera: Easily soluble, fibrous adhesions were found in the right pleural cavity, involving the upper and middle lobe of the lung. The lung itself, however, crepitated throughout and floated well above the surface of the water. The middle and lower lobes of the lung contained a smaller amount of air and showed numerous areas of peribronchial reddening and consolidation. The bronchi showed a deeply reddened and swollen mucosa, especially in their narrower ramifications. Similar conditions prevailed in the left lung. A microscopic study of the lung tissue revealed a bronchopneumonia, with aspiration of infected material, very probably during the patient's unconsciousness. The bacteriology shows a rather variegated flora of micro-organisms; no pneumococci of Fraenkel and no intracellular diplococci.

flora of micro-organisms; no pneumococci of Fraenkel and no intracellular diplococci.

Agglutination Test.—In applying the agglutination test, a dilution of the serum of 1 to 100 was used, on a typhoid culture in bouillon not over twenty-four hours old. Positive agglutination was complete within twenty minutes. The culture was a transfer from a regular laboratory stock culture and by no means too attenuated, nor can any fault be ascribed to the physiologic salt solution used in making the dilutions.

We feel convinced of the reliableness of our results from the report made by Symmers and Wilson,* whose findings are identical in the history, postmortem appearances and the agglutination tests, except that in the case reported by them the Widal reaction was obtained in even a dilution of 1 to 200 within fifteen minutes.

We are aware, of course, of the fact that while agglutinins may be nearly, if not quite, specific in their action, a serum which produces agglutination may be far from being so; also, that such agglutinins may be produced by micro-organisms which we do not ordinarily regard as being related, as, for instance, certain varieties of proteus and staphylococcus, which, according to Stern, produce sera of marked agglutinating power for typhoid bacilli also.

While we are almost certain that the specific agglutinins of typhoid and for the *Diplococcus intracellularis* are quite distinct, and that higher dilutions of the serum of this patient would have ultimately agglutinated only with the meningococcus, yet the case appeared to us of sufficient interest for practical purposes to indicate the desirability of its publication here.

It might be added, in support of the diagnosis of the epidemic character of the case, that simultaneously with this one another inhabitant of the same boarding-house was taken with a disease presenting the same symptom-complex and died a day previous at the same hospital. The physician who performed the necropsy did not enter the cranium, and reported the case as ptomain poisoning.

1030 Grand Avenue.

TOXIC EFFECTS FROM BISMUTH SUBNITRATE

WITH REPORTS OF CASES TO DATE

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Toxic effects from the use of bismuth subnitrate in medicine and surgery are so rare that until recently physicians have regarded its administration as perfectly harmless. Schuler¹ and Bardeleben² have pronounced its action non-toxic. The latter treated 100 extensive burns by dusting them with bismuth subnitrate and observed no unpleasant symptoms therefrom. Professor Mühlig³ administered 20 gm. daily for a prolonged period without producing any poisonous effect.

It was, therefore, not surprising that when radiographers began to use bismuth subnitrate for the purpose of obtaining radiographs of the stomach and intestines, they had no hesitancy in administering large doses, and boasted of the safety with which as much as 40 gm. in one dose could be administered.

* Symmers, W. S., and Wilson, W. J.: Epidemic Cerebrospinal Meningitis with Typhoid Agglutinins in the Blood, Brit. Med. Jour., Sept. 21, 1907.

1. Ztschr. f. Chir., 1885, cited from Novak.

2. Deutsch. med. Wchnschr., 1892, No. 23, p. 544.

3. München. med. Wchnschr., 1901, No. 15, p. 592.

Cases of poisoning resulting from the administration of bismuth subnitrate have been reported as early as 1793, but these were thought to be due to the impurities in the drug, such as arsenic. The first authentic report of bismuth poisoning was made by T. Köcher;⁴ in 1882, who observed that the insoluble bismuth preparation, when applied to large wound surfaces, was capable of yielding so much bismuth absorption as to produce poisonous effects, characterized by acute stomatitis, black discoloration of the mucous membrane, usually beginning at the border of the teeth but later spreading over the whole mouth, followed by intestinal catarrh, pain and diarrhea, and in severe cases by desquamative nephritis.

Similar cases were reported by Professor Peterson.⁵ Thereafter the literature remained silent on the subject until 1901, when Professor Mühlig reported two cases of severe burns in which pure bismuth subnitrate was applied, and severe symptoms of bismuth poisoning appeared two weeks after application. In both cases symptoms disappeared as soon as the wounds were curetted.

A similar case was reported by Dressman,⁶ in which an extensive burn of the third degree was dressed with a bismuth salve and the characteristic symptoms appeared three weeks later. While the symptoms abated as soon as the applications were stopped, the blue marks around the teeth remained for six months.

Wordan, Sailor, Pancoast and Davis⁷ reported two cases, in which 60 and 120 gm. respectively were administered each in one dose. Both cases developed the characteristic symptoms of bismuth poisoning and both recovered.

The first fatal case directly traceable to the administration of bismuth subnitrate for diagnostic purposes is reported by Bennecke and Hoffman.⁸

To a three weeks' old child (suffering from enteritis, weak and emaciated), a mixture of 3 gm. of bismuth subnitrate in 100 c.c. of buttermilk was administered by stomach, in order to diagnose a pyloric stenosis by Roentgenogram. Twelve hours later the child developed cyanosis, collapse, and died in three hours. Postmortem revealed bismuth in the bowel and small quantities in the liver and blood. Methemoglobinemia was present.

From the same clinic a similar case was reported by Boehme.⁹

Patient.—A child, one and a half years old, markedly rachitic, artificially fed and marasmic, received a few grams of bismuth subnitrate by stomach for radiographic purposes. The stomach was washed and no symptoms of poisoning appeared. Two days later a few grams of bismuth subnitrate were injected per rectum for same purpose, and again the bismuth was washed out. Three hours later the child was suddenly seized with pain, cried, became cyanotic, pale, skin cool, pulse small, and died in twenty to thirty minutes.

Autopsy.—Distinct methemoglobinemia; all the mucous membranes were brownish discolored; there was marked rachitis, dilatation of stomach, with stenosis of pylorus. The colon contained large quantities of black and white bismuth.

Professor Hefter suggested that death might have been caused by nitrite poisoning. The blood and pericardial fluids were tested, and in both nitrites were found. Bismuth could not be detected in the liver or blood. These chemical findings threw new light on both

cases and prompted Dr. Boehme to determine the true cause of bismuth subnitrate poisoning. The results of his experiments were as follows:

Boehme proved by test-tube and animal experiments that the feces of children, when in contact with bismuth subnitrate, would liberate nitrites which would be quickly absorbed from the intestine and found in the urine. While methemoglobinemia was not caused by the absorption, it must be assumed that the absorption of larger quantities would produce methemoglobinemia. Experiments proved this to be a fact.

Collishon¹⁰ reports two cases of accidental nitrite poisoning, in which the sodium nitrite instead of the sodium nitrate was given. The symptoms were cyanosis, extreme weakness, and a grayish-blue discoloration of the mucous membrane and the tongue. The symptoms were so severe as to produce collapse, but cleared up after the drug was discontinued.

Binz¹¹ injected small doses of sodium nitrite into dogs, causing their death in a few hours, with symptoms of gastroenteritis and methemoglobinemia.

Harnack¹² caused the death of a cat within five minutes after the administration of 5 gm. of sodium nitrite. Methemoglobinemia was present.

Routenberg¹³ reported a case in which a methemoglobinemia with the usual symptoms of nitrite poisoning followed the rectal injection of 50 gm. of bismuth subnitrate in 400 c.c. of oil of sesame. While Routenberg ascribes the poisoning to the contamination of the oil, the analogy with other similar cases leads one to suspect that it was a case of nitrite poisoning.

A recent report of a fatal nitrite poisoning due to bismuth subnitrate is published by Novak and Gutig:¹⁴

Patient.—A man, 44 years of age, in July, 1908, received a rectal injection of four tablespoonfuls of bismuth subnitrate suspended in two liters of water, for the purpose of testing an intestinal obstruction.

Intoxication.—Soon after the x-ray examination the bowels were washed out, and while he showed no symptoms on retiring, early in the morning the nurse discovered a discoloration of the patient's skin. Gradually the patient became grayish-green, his mucous membranes cyanotic, his temperature 40, his pulse 96, his breathing stertorous. No response could be elicited. Venesection revealed blood to be of chocolate color, due to methemoglobinemia. The patient died eighteen hours after the rectal injection of bismuth subnitrate.

Spectroscopic Examination of Blood.—A few hours after death this showed that the blood again became normal, the brown color being changed to red, showing that methemoglobinemia had disappeared after death.

Experiments by Novak and Gutig prove that some animals, as, for instance, cats, are very susceptible to bismuth poisoning, while dogs and rabbits tolerate large doses.

It has been proved that nitrites, when formed, may be neutralized. If iodine nitrate be added to feces containing nitrites the latter will disappear in two or three days. Maassen has proved that certain bacteria in the bowel convert the nitrites into ammonia or into nitrogen. It is likely that the bismuth subnitrate ingested always causes a liberation of small quantities of nitrites, which are either absorbed and owing to the small amount cause no toxic symptoms, or are changed in the intestine into ammonia or nitrogen.

4. Samml. klin. Vortr. (Volkmann's), 1882, No. 224, p. 1907.

5. Deutsch. med. Wchnschr., June 20, 1883.

6. München. med. Wchnschr., 1901, No. 6, p. 238.

7. Univ. Penn. Bull., 1906, August, 1906, p. 122.

8. München. med. Wchnschr., 1906, No. 19.

9. Arch. f. Exper. Path. and Pharmacol., 1907, p. 441.

10. Deutsch. med. Wchnschr., 1889, No. 41.

11. Arch. f. exper. Path. u. Pharmacol., xiii.

12. Arch. f. exper. Path. u. Pharmacol., October, 1908, p. 246.

13. Berl. klin. Wchnschr., 1906, No. 42, p. 1307.

14. Berl. klin. Wchnschr., 1908, No. 33, p. 1764.

When, however, large quantities of bismuth subnitrate are given, and the liberation of nitrites is abundant and can not be neutralized quickly, so that large quantities of nitrites are absorbed, typical symptoms of nitrite poisoning will appear. Alcohols and glycerin accelerate the formation of nitrites in the intestines. This suggests a practical point, namely: When a case of nitrite poisoning is encountered alcohols and glycerin should be withheld from ingestion and some form of iodine should be administered.

From these experiments and reports of fatal cases it must be concluded that the poisonous effects of bismuth subnitrate were not due to the absorption of the metallic bismuth, but to the absorption of nitrites, which caused the methemoglobin to precipitate in the blood. The methemoglobinemia appears to be the factor producing most of the clinical symptoms, the cyanosis, dyspnea, diarrhea and cramps. These symptoms indicate that the sudden change in the blood impairs the internal or tissue respiration, and the patients succumb with symptoms of suffocation.

It appears that the intestine, and especially the sigmoid and the rectum, are the laboratories for the liberation of nitrites. The bacteria in this part of the intestinal tract evidently are the nitrite-splitting factors whereas those in the stomach and small intestine allow the bismuth subnitrate to pass into the large intestine without liberation of larger quantities of nitrites.

In the fatal cases thus far reported the patients were suffering from intestinal diseases, especially diarrhea or constipation, which suggests that the intestinal putrefaction accelerated the nitric formation and rapid poisoning.

During the past two years I have employed bismuth subnitrate extensively in the treatment of empyema, sinuses and abscess cavities¹⁵ by injecting into the cavities a mixture containing 33 per cent. bismuth subnitrate incorporated in vaselin. The question arose as to what became of the bismuth paste after injection. A study of the subject revealed the fact that if the paste was not discharged from the sinus soon after injection, but was retained, it became encapsulated and absorbed. In non-resilient cavities, as in bone, the mass was gradually penetrated from all sides by fibroblasts and gradually replaced by connective tissue, while in collapsible cavities, such as the pleura, the expanding lung gradually replaced the slowly absorbed bismuth paste. This could be confirmed by taking radiographs of the regions so injected, at certain intervals.

This, then, proves that the bismuth paste is absorbed, and the question arises: How is the bismuth excreted, and is its absorption harmful? These two problems are now being investigated, but as the investigation is not completed, I shall in this paper bring forth only definite practical facts and defer the publication of the theoretical aspect of the investigation until the data obtained warrant definite conclusions.

From the experiments of Harnack,¹⁶ M. M. Berge-rett¹⁷ and E. S. Wood¹⁸ it may be concluded that the bismuth is slowly absorbed and slowly eliminated.

Before attempting to answer the question whether the absorption is harmful, it is necessary to decide whether the harmful effects noted in the cases reported are due to the absorption of the liberated nitrites or of the bis-

muth itself. After comparing the symptoms of the two cases reported by Collishon, which were caused by sodium nitrite poisoning, with those of other authors, caused by the administration of bismuth subnitrate, one can hardly doubt that the source of poisoning is identical and that the nitrites are the factors which are responsible for the sudden and violent attacks of poisoning. This fact is supported by the experiments of Boehme, and Novak and Gutig.

In my experience of two and one-half years with the injection of bismuth vaselin into sinuses and abscess cavities I have not encountered any case in which the train of symptoms would correspond to that of an acute nitrite poisoning, so graphically described by the various authors who have met with these cases. In many cases I have noticed a slight lividity of the mucous membranes and skin and a bluish border at the margin of the teeth; otherwise conditions were perfectly normal. In only one case did I note a distinct ulceration in the mouth, which was characteristic of the bismuth absorption as described by Kocher. In another case, that of an empyema pleurae, I injected into the pleural cavity 720 gm. of 33 per cent. bismuth paste, which was retained there for six weeks; then the patient developed a desquamative nephritis, albuminuria, rapid loss of previously gained weight and the blue border around the teeth. As soon as the bismuth paste was withdrawn by means of an injection of olive oil and the application of a specially devised suction pump, all the symptoms disappeared and the patient regained his weight in a few weeks.

I desire to record a case referred to me by Dr. Roberts, in which the bismuth injections had caused severe bismuth intoxication, and after the symptoms abated the patient died:

Patient.—R., a lawyer, aged 57, for many years an invalid, had had tuberculosis of the hip since 1896, and after extensive operations retained several sinuses which discharged large quantities of foul pus.

Bismuth Injections.—In March a 33 per cent. bismuth vaselin paste had been injected into the sinuses by Dr. Roberts twenty times in a period of sixty days, the total amount representing about 400 gm. of pure bismuth subnitrate.

Intoxication.—While the patient's general condition improved at first and the sinuses healed, he gradually developed all the signs of typical bismuth intoxication as described by Kocher. The mucous membrane of the mouth and gums became bluish-black with ulcerations, his teeth became loose and his lips edematous. He experienced great thirst, diarrhea, and had nephritis. The symptoms gradually abated, the patient became well enough to resume his work as an attorney, and for two months was active in his vocation. A radiograph taken of his pelvis demonstrated that there were only small quantities of bismuth within the tissues, but they appeared to be disseminated through the entire pelvis.

Later History.—Aug. 1, 1908, the patient fell and injured his wrist, and a large abscess was formed, which was operated on by Dr. Verity. A large area of necrosis followed. From this time the patient's temperature varied from 99 to 101.5. He lost in strength: his urine was loaded with casts and albumin; his heart became weaker and irregular, and he died Aug. 16, 1908.

Autopsy.—This, made by Dr. Gehrmann and myself, revealed all organs practically negative except the kidneys, which showed evidences of incipient contraction, the capsule being irregularly depressed, and the intestines, which were lined with a mucous membrane, resembled huckleberry jam in color.

Histologic Examination.—The microscopic examination of tissues from the liver, spleen, kidney, heart muscle and intestine, and the chemical analysis of tissues were made by Dr. Maximilian Herzog. His report is as follows:

15. Illinois Med. Jour., April, 1908, xiii, 402; July, 1908, xiv, 38.

16. Arznelchre, 1883, n. 383.

17. Jour. de l'anat., 1873, p. 242.

18. Tr. Am. Neurol. Assn., 1883, p. 23.

Liver: A number of parenchyma cells showed bile granules in their protoplasm. Whether the latter also contained here and there bismuth could not be definitely decided, since no microchemical reaction for bismuth is known. It appeared, however, that the granules darker than the bile granules which were found frequently in the liver cells were bismuth granules. The latter could first be seen distinctly and beyond doubt in the intralobular capillaries. The dark granules were seen in the lumen of the small vessels, and crowded in fusiform cells, probably the star cells of Kupfer. In the interlobular veins (the terminal branches of the portal vein) bismuth was present to a large extent; it was found in the vascular endothelium and deposited in the form of fine granules on the free surface of the intima. Bismuth was also occasionally found in the small interlobular bile ducts, but the biliary ducts and capillaries were generally collapsed and empty.

Kidneys: The renal tissue showed chronic interstitial changes with hyaline degeneration of a considerable number of glomeruli. A few of the degenerated hyaline spheres contained lime salts. Some tubules contained hyaline casts; here

The above case does not present the typical symptoms of an acute nitrite poisoning, such as collapse, cyanosis, etc., and while the absorption of the metal bismuth is proved by microscopic examination and chemical analysis, the question still remains whether the absorption and presence of metallic bismuth in the tissues was a cause of death. The pathologic changes in this liver, spleen and heart muscle do not indicate that a severe destructive process which would interfere with function was going on. The interstitial nephritis was probably not due to the bismuth absorption, since the renal tissue was free from deposits of the metal and many pathologic conditions could be expected in an old man who had for years suffered from a chronic suppurative disease. Dr. Verity reports to me that the patient was treated by him ten years ago for chronic nephritis.

The point open to debate is whether this case should go into literature classed as a fatal case of death from bismuth intoxication, or as a case of recovery from the effects of bismuth absorption, death being only accidental and due to other causes.

CONCLUSIONS

1. Bismuth subnitrate administered by stomach in small doses is harmless.

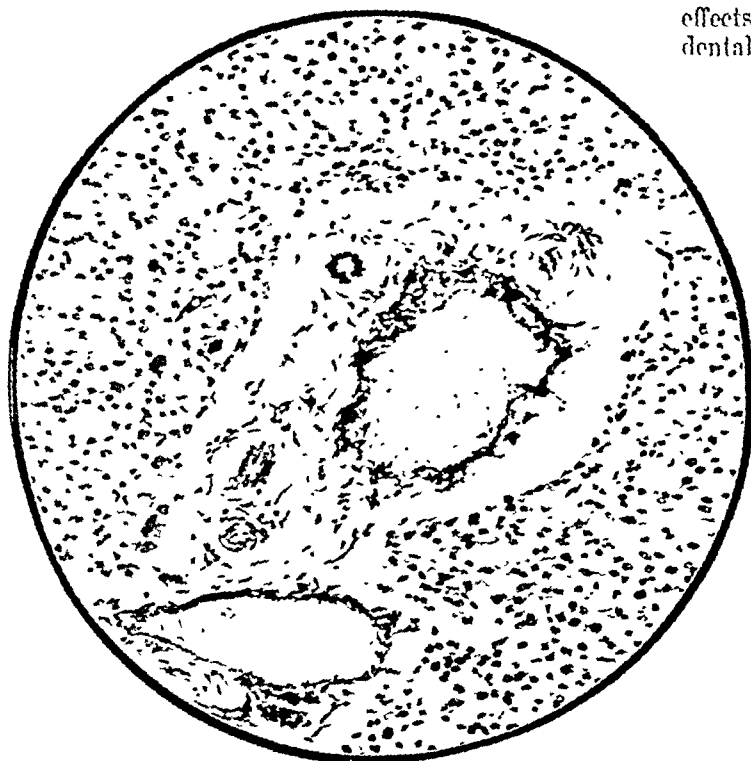


Fig. 1.—Microphotograph of section of liver 4 microns thick. In the center an interlobular vein, to the right and above a sublobular vein. The intima of both lined with bismuth. Magnification, 210 diameters.

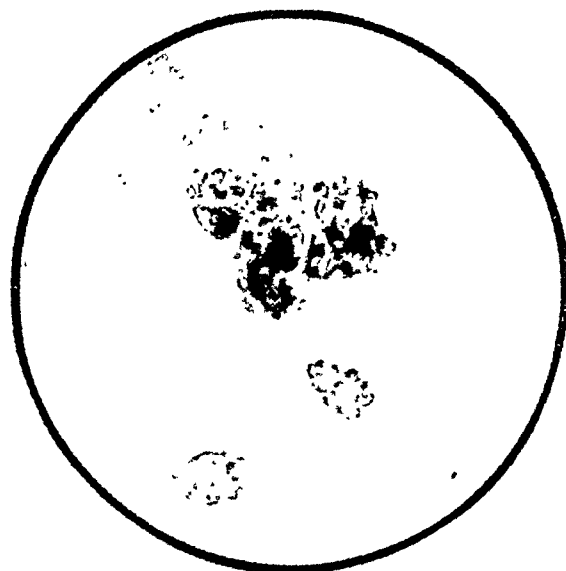


Fig. 2.—Microphotograph of section of liver about 4 microns thick. Some liver cells loaded with bismuth. Magnification, 1,000 diameters.

and there the tubular epithelia showed marked cloudy swelling. There was no bismuth present in the renal sections.

Spleen: There was some thickening of the capsule and of the trabeculae noticeable. The pulp spaces were not very distinct and were well crowded with erythrocytes and leucocytes. The Malpighian bodies were not well defined. Some bismuth was present in the shape of amorphous granules and denser masses in the pulp spaces.

Myocardium: Fairly normal.

Intestinal and Lymphoid Tissues: The intestinal tissues showed an extensive infiltration of the mucosa with bismuth. The lymphoid tissue likewise showed bismuth and much of the latter was found in the veins of the submucosa.

Chemical Examination.—The heart muscle contained a faint trace of bismuth. The spleen (very small piece) gave a distinct reaction for bismuth. The liver contained 0.13 per cent. of bismuth oxid. The tissue was pressed fairly dry between filter paper. The total weight of the specimen was 2.292 gm. and the total ash weight 0.03 gm., in which bismuth oxid amounts to 0.003 gm.

2. In the presence of certain bacteria, or the feces of children, bismuth subnitrate will liberate nitrites, which will be absorbed by the intestines and eliminated by the kidneys; and if the production is faster than the elimination, methemoglobinemia will result.

3. In larger doses per os bismuth subnitrate is liable to produce an acute nitrite poisoning, characterized by cyanosis, collapse, methemoglobinemia, and may terminate fatally.

4. Rectal injection of bismuth subnitrate may cause nitrite poisoning much quicker and more severe than when the drug is administered per os.

5. Children are more susceptible to nitrite poisoning from administration of bismuth subnitrate.

6. Persons suffering with intestinal putrefaction are more susceptible to nitrite poisoning when taking small amounts of bismuth internally.

7. After the injection of large quantities of bismuth paste into suppurating sinuses, mild symptoms of nitrite intoxication may appear.

8. The bismuth injected into these sinuses and encapsulated will be gradually absorbed and may be found in the liver, spleen, muscles and intestines.

9. Characteristic symptoms of black borders of gums, ulcerations of mucous membranes, diarrhea, desquamative nephritis, may appear several weeks following the injection of the paste.

10. The acute nitrite poisoning is to be regarded as a distinctly separate affection from the more chronic bismuth absorption.

11. Radiographers should employ some other preparation of bismuth instead of the nitrate, and refrain from injections of subnitrate into the bowels, especially if intestinal putrefaction is present.

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A DECEPTIVE CASE OF LEPROSY *

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AND

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REPORT BY DR. WHITE

In August, 1907, a young woman from Courland, Russia, was referred to the skin department of the Massachusetts General Hospital for diagnosis. She had been treated one week previously in the "throat room" or "chronic rhinitis" and at her second visit blue-red papules had been discovered on her arm and she was consequently referred to us. The diagnosis of leprosy was made and subsequently corroborated by Dr. Richardson's pathologic findings and the girl was taken to the state leprosorium.

A few days later the board of health of Brookline was informed by an anonymous letter that another leper was working as a servant at a certain residence in that town. The members of the board made an immediate investigation at the house mentioned, but found that the young woman in question had disappeared. Two days afterward this suspected individual presented herself voluntarily at the skin clinic of the Massachusetts General Hospital and was sent to the skin ward for observation and study.

History.—The patient, a young woman, aged 19, was born in a village in the Baltic province of Courland.¹ She stated that her father was dead (cause unknown), but that her mother and brothers were alive and well in their native village. At the age of ten a cutaneous eruption appeared, and on its subsidence scars were found on the right elbow, which still exist. In December, 1906, a sore developed on the genitals and was followed by a rash but no evidence of any labial cicatrix was visible at our first examination. In July, 1907, another outbreak on the skin occurred and was treated by a neighboring physician, but unfortunately his testimony could not be secured. During the last year the girl had been well except for occasional headaches. This was all that could be gleaned from the past history of the case. At entrance on Aug. 24, 1907, the patient stated that the present ab-

normal conditions began five days previously without any known cause, and she denied absolutely that she had taken any medicines before or since the appearance of her present symptoms.

Examination.—The general condition of the girl was fair; temperature 99.4 F., pulse 90, and respiration 25. The pupils were unequal in diameter and irregular in outline. The conjunctiva of the right eye, especially about the cornea, was considerably injected and pain and photophobia were present. The eyebrows were somewhat scanty, particularly at the distal ends. The tongue protruded straight and was covered with a slight, white coat. Cervical, axillary, epitrochlear and inguinal glands were moderately enlarged and shotty to the touch. The neck was not rigid or tender. Examination of the internal organs revealed nothing abnormal save a soft systolic murmur at the apex of the heart which was transmitted but a short distance toward the axilla. The knee jerks were present and equal. The cutaneous eruption, however, proved more interesting. The face was rather generally suffused and edematous and the nose, in particular, seemed swollen. There were no nodules here, but the lateral diameter was evidently increased and this feature persisted throughout the fourteen weeks of observation. In addition to these general appearances the face, forearms, hands and lower legs showed thickly scattered, round, pea to dime-sized, brick-red macules and maculo-papules with bluish centers. The trunk exhibited a few similar lesions. On the lower legs, especially on the extensor surfaces, more advanced lesions were apparent in the nature of numerous pea to dime-sized exulcerations covered with a sero-purulent, sometimes blackish crust.

Diagnosis.—Despite the anonymous letter and despite the long continued intimacy between this girl and her fellow-townswoman, whom we had so recently adjudged a leper, we were inclined to regard this present eruption as a form of autointoxication resembling erythema multiforme (possibly bullosum).

Treatment.—A soothing carbolio acid and zinc wash, boracic acid ointment, Epsom salts, a diet of milk and soft solids and atropin for the eyes were recommended.

Subsequent History.—On Aug. 27, 1907, three days later, the maculo-papular erythema had perceptibly diminished, the temperature was normal and the crusts had fallen but the ocular symptoms were still present, though to a lesser degree, and on the legs the exulcerations were drying up. Here, however, new features were now exposed consisting of several large pea-sized, round, deep, punched-out ulcers and several still larger pigmented scars. One of these chocolate-colored cicatrices was excised and sent to Dr. Richardson for examination as to the presence or absence of acid-fast bacilli. With these apparently typical gummatous ulcers and the presence of a general adenitis before us, coupled with the history of a previous genital sore, we now made the diagnosis of syphilis and began the tri-weekly injections of a sixth of a grain of bichlorid of mercury which were continued until Sept. 28, 1907.

On Aug. 30, 1907, Dr. Richardson reported the finding of numerous acid-fast bacilli in the sections from the cicatrix of the leg. It must be confessed that this finding was a great surprise, but nevertheless from a clinical standpoint, we were unwilling to believe that the disease was leprosy. Under ether a two-inch incision was made over a subcutaneous mass felt about three inches above the left elbow in the region of the ulnar nerve and two large pea-sized nodules, apparently glands, were dissected out. The nerve itself was found to be perfectly normal. In addition, a small crusted lesion was excised from the right leg, half way between the knee and ankle. An examination of the urine showed it to be slightly cloudy, 1.025 in specific gravity, without albumin or sugar, and containing in its sediment a few round cells, a rare blood globule, but no acid-fast bacilli.

On Aug. 31, 1907, the skin was carefully examined for anesthesia but none was found. The rash had now entirely faded, leaving some pigmentation and a slight, superficial, branny desquamation. The blood showed 100 per cent. of hemoglobin, and a differential count of polymorphonuclears 77

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-ninth Annual Session, held in Chicago, June, 1908.

1. At the Lepia Conference of 1896, it was recorded among other statistics that 134 lepers were known to be living in this province.

per cent., mononuclears 21 per cent., and eosinophiles 2 per cent.

Two days later the board of health insisted on transferring the patient to the Detention Hospital, but on the following day, as the result of our protests, and because certain members of the city board of health and of the state board of charities regarded the disease as syphilis, the young woman was returned to our care. On readmittance it was found that the superficial scaling, first observed four days previously, was still present.

On Sept. 5, 1907, Prof. Eric Hoffmann, of Berlin, was kind enough to make a thorough examination of the patient. Nothing was told him about the girl and no mention of the pathologic findings was made until afterwards, and this was the rule followed with all the distinguished foreigners whom we were fortunate enough to be able to call in consultation over this puzzling case. Professor Hoffmann's diagnosis was syphilis, possibly complicated with tuberculosis or a tuberculide. Prof. James C. White studied the case also and made the diagnosis of syphilis. In the afternoon 0.001 gram of old tuberculin was administered subcutaneously.

On Sept. 6, 1907, Prof. Bertarelli and Dr. Pizzini of Milan kindly looked the patient over very carefully and both stated that in their opinion she was suffering from syphilis. They also wished to have borne in mind the possibility of a complicating tuberculosis or a tuberculide. The two-hourly chart kept since the injection of the tuberculin showed no temperature exceeding 99 F. The urinary examination revealed no changes, save a lower specific gravity (1.017) from that of the previous week.



Fig. 1—Showing the abundance and distribution of the healed ulcers on the lower part of the leg.

On Sept. 10, 1907, the areas of pigmentation were fading away. The patient was bearing well the injections of mercury, but complained somewhat of pain for a few hours after each dose was administered. Dr. A. Quackenboss of the Massachusetts Eye and Ear Infirmary made an ocular examination. He reported that the right eye showed evidence of a previous iritis with one adhesion and several spots on the anterior capsule. The left eye also presented signs of previous iritis.

On Sept. 12, 1907, 0.005 gram of old tuberculin were injected at 5 p. m. The two hourly chart recorded during the next twenty-four hours, as before, no temperature in excess of 99 F.

On Sept. 16, 1907, Dr. Hallopeau of Paris and Dr. Whitfield of London were good enough to make a thorough examination of the patient and both of these gentlemen were convinced that the girl was the victim of syphilis. In order to study the nasal secretion, 20 grains of iodid of potash t. i. d. were ordered in the hope of producing a coryza.

On the following day, Dr. Radcliffe-Crocker of London came to see the patient, but he had been told of the case and its pathologic details by his compatriot, Dr. Whitfield, and consequently was unwilling to commit himself to a definite opinion. That morning the girl's temperature was 101 F.,

and in the afternoon it climbed to 102 F. Concomitantly there was a slight return of the erythema and edema of the face and a feeling of general malaise. [In the light of our present maturer conception of this girl's condition, we are inclined to regard this occurrence and the severer earlier outbreak on admission as explosions of leprosy bacilli from some focus into the general circulation rather than a possible reaction from the iodid of potash administered during the previous twenty-four hours.]

On Sept. 18, 1907, Dr. W. R. Brinkerhoff of the government leprosy staff of Honolulu saw the patient and stated

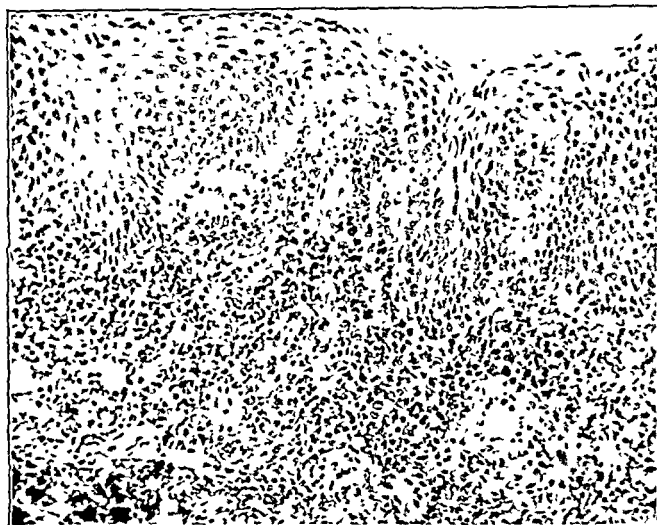


Fig. 2—Section showing the histopathology of one of the late nasal nodules. Note the unusual development of cells up to the epidermis itself; the absence of giant and of leprous cells; the dilatation of the lymph vessels with their vesicular nuclei.

that there was no clinical evidence of leprosy except in the scantiness of the eyebrows and in the thickening of the nose. After an examination of the pathologic sections he said that the bacilli seemed shorter and thicker than the leprosy bacilli he was accustomed to see at Molokai, but the tissues and the arrangement of bacilli were very suggestive of

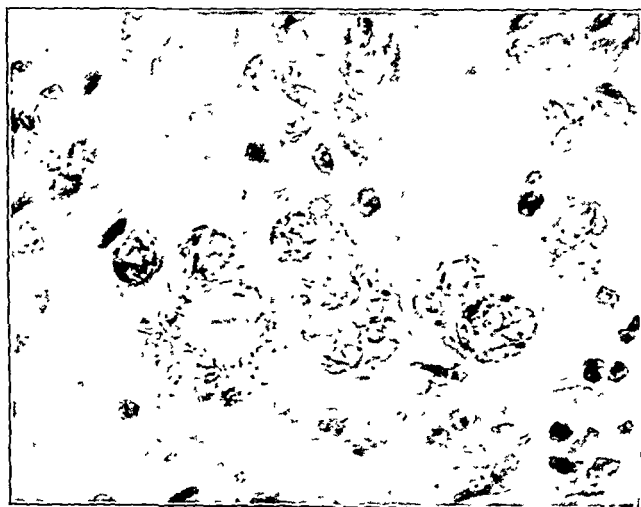


Fig. 3—Section illustrating three typical leprous cells. Note their dissimilar size and shape, their vacuoles and their numerous bacilli.

leprosy and not at all compatible with our ideas of tuberculosis.

There had been no increase of nasal secretion resulting from the administration of iodid of potash and several smears from the nose, stained carefully with hot carbol-fuchsin and Gabbet's blue, failed to reveal any acid-fast bacilli. The ulcers on the legs were now healed—twenty-five days after

entrance and after ten injections of 1/6 of a grain of bichlorid of mercury—but a very marked pigmentation of the skin remained at their sites.

On Sept. 20, 1907, Dr. H. C. Baldwin of the neurologic staff of the hospital made a careful examination of the sensations of the skin and of the general reflexes, but found nothing abnormal. The weight was now 102 pounds.

On Sept. 27, 1907, two small, hard, pea-sized nodules were noticed for the first time on the right arm, but in the opinion of the patient these lumps had been present for at least a month. They were both hard, not raised above the skin, and were freely movable with the integument. One-sixth of a grain of pilocarpin was injected in order to study the nature of the sweat secretion, but the reaction, although present, was so slight that nothing definite was learned.

On Sept. 29, 1907, under ether, an incision was made over the right elbow and a pea-sized mass lying in contact with the ulnar nerve was excised and sent to Dr. Richardson. At the same time smears were made on various culture media from the juice of this gland. The nerve itself seemed smooth and normal in appearance.

On October 1 the patient passed into the service of Dr. J. T. Bowen, but he kindly allowed us to continue our investigations.

Second Examination.—Two days later we made a systematic clinical examination of the girl. The eyebrows were mostly gone except in the middle. There were no nodules to be felt. The corneæ showed a few dilated veins. The pupils were widely dilated but the circles were not perfect. On the forehead there was one irregularly-circular, rather deep cicatrix. The skin of the nose was somewhat seborrhœic, but without dilated follicular orifices. The nose was broad at the alæ. The cheeks were flushed and on them were noted one rounded, dark red papule with a delicate collarette of exfoliated epithelium and four small, deepish, oval scars. Near the right angle of the mouth, but not radiating from it, were three pin-head, shallow scars. The ears were normal and bore no nodules. The hair was fair in color, distinctly abundant, and not in the least dry. The back showed nothing abnormal, save a few, faint, irregularly distributed macules. The axillæ presented normal and dark hairs and the localized sweating was rather profuse. The skin of the chest was not remarkable except for the presence of numerous, dull-red macules suggesting cutis marmorata. On the left upper arm, near the outer condyle, was found an oval, pea-sized, blue-red scar and on the inner side the marks of the biopsy of Sept. 29, 1907. The left forearm exhibited five, dull red, subsiding papules, some of which could be more aptly designated as scars. The right upper and lower arms were quite similar to the left. The hands were blue and cold and rather moist, but bore no pathologic lesions. On the right buttock were eight fading blue-red papules and scars. The largest papule was firm and infiltrated and three-eighths of an inch in diameter. Seventeen similar, smaller and larger papules were counted on the right thigh. The left buttock presented one blue-red, flat, oval tubercle, slightly infiltrated and firm. The left thigh showed eight blue-red macules with accompanying scar formation. On the right leg were found (Fig. 1) on the inside, front and outside of the middle third, blue-black, round or oval, dry scars, the remains of the previous exulcerations and other antecedent lesions. There was some originally appeared as a typical gummatous ulcer. The feet confluence noted, but no grouping as in typical late syphilis and nearly seventy-five of these cicatrices were counted. The left leg presented a somewhat analogous picture and below the patella was found a circular scar, the remnant of what were normal except for the dryness of the skin.

On Oct. 5, 1907, a nodule was excised from the right ulnar region.

On October 11 the weight was 105 pounds and 6 ounces. Two days later the records state that the patient was up all day, "felt splendid," and had an excellent appetite. This satisfactory condition existed despite the frequent mental perturbations caused by our numerous investigations and despite her compulsory and really almost solitary confinement in her narrow hospital room,

On Oct. 16, 1907, another biopsy was made, this time from a healed, mahogany-colored, smooth scar on the right leg, of a month's duration. On the following day the weight was 107 pounds.

On Oct. 22, 1907, Professor Veiel, of Cannstatt, kindly made a most thorough examination of the patient and felt convinced that the lesions on the skin were syphilitic.

On Oct. 25, 1907, Dr. Richardson reported that the sections from the last biopsy were more typical of leprosy than any of their predecessors and that the acid-fast bacilli appeared in greater numbers.

On Oct. 28, 1907, a nasal examination was requested because lesions had been discovered and Dr. H. P. Mosher of the throat department of the hospital reported that the mucous membrane of the nose was rather dry and that a small yellowish tubercle was present on the anterior end of the left inferior turbinate bone. The pharynx and larynx were normal.

On the following day Dr. Algernon Coolidge, the senior physician of the throat department asked to see the patient and found three large pin-head sized points under the epithelium of the mucous membrane on each side of the septum nasi and a similar growth on the anterior end of the left inferior turbinate. One of these lesions was excised. Dr. G. H. Waterman of the neurologic department of the hospital examined the cutaneous reactions of the patient and found nothing abnormal save a slight insensibility to pin prick over the dorsum of both feet. Smears from the nose were stained with steaming carbol fuchsin and Gabbet's blue and for the first time a few grouped and clearly defined bacilli were found.

On Nov. 2, 1907, the weight was 111 pounds and 2 ounces.

On Nov. 19, 1907, an investigation of some of the finer diagnostic points of the disease was made and the following data were obtained:

1. *The presence of hair on the most affected parts of the body:* As a whole, over the legs normal hair existed in sufficient quantities except in the immediate vicinity of the scars, where it appeared only occasionally.

2. *Anesthesia in or near the scars:* None whatever, the most delicate pin prick being appreciated.

3. *The sensibility of the nasal mucous membrane:* This power was absolutely intact.

4. *The condition of the eyes:* The conjunctiva presented a few comparatively large vessels arranged in a radial manner. The iris was round and reacted perfectly to light. There were no nodules to be seen.

5. *Menstruation:* For the first time since entrance the patient menstruated during the first week of November, 1907.

6. *Glandular system:* In the right groin there was a large mass of soft, somewhat sensitive glands. On the left side there was one large soft element. In the left cervical region there was a chain of glands. No epitrochlear enlargements could be felt.

On Nov. 21, 1907, the weight was 116 pounds and 8 ounces. On the next day it was noted that no new cutaneous features had appeared but several minute ulcerations were observed on the mucous membrane of the nasal septum. The general health was most satisfactory.

On Nov. 24, 1907, we felt that the time had come when we could no longer doubt that the girl was a leper and she was therefore reluctantly turned over to the authorities for transfer to the state leprosarium on the island of Penikese.

Such is the detailed history of this unfortunate patient. It is easy enough for us now in the light of our present pathologic and bacteriologic knowledge to pronounce this case leprosy, but let it be well understood that until the nasal symptoms developed the dominant clinical features were not those of leprosy, as may be well appreciated when such distinguished European dermatologists as Bertarelli, Crocker, Hallopeau, Hoffmann, Pizzini, Veiel and Whitfield unanimously declared that the girl was syphilitic. When these gentlemen were informed, after pronouncing their opinions, that the pathologic sections were typical of leprosy

they could only shrug their shoulders with astonishment and incredulity.

Let me pause one moment before enumerating the conclusive pathologic details to record what clinical symptoms were present up to the late appearance of the nasal features which should have convinced us that we were dealing with leprosy and not with syphilis. After rather an extensive perusal of leprologic literature, I have been able to record only the following symptoms which coincide with the conditions found in the present case: Place of birth; edema and suffusion of the face, especially of the nose, accompanied by a general seborrhea and small acneiform papules; rarefaction of the eyebrows; conjunctivitis and iritis; general adenitis, cyanosis of the hands; irregular menstruation; ulcerations and, lastly, hyperpigmented scars with local and adjacent alopecia. But what a short and unconvincing list in such a protean disease as leprosy! Not one of these symptoms is pathognomonic and all of them are common to many pathologic processes.

On the other hand, we were confronted by an apparently healthy young girl who entered the hospital partially covered with a fairly typical but severe eruption of erythema multiforme, who later presented one absolutely characteristic gummatous ulceration and many other conceivably syphilitic exulcerations, who quickly freed herself from all these active symptoms after ten injections of mercury and in the face of the constant mental excitement of repeated examinations and biopsies, and who, despite her solitary confinement, gained fourteen and one-half pounds in two months. Such conditions made us extremely skeptical of the microscopic revelations, and until the nose began to develop its convincing symptoms we obstinately rejected the idea of leprosy and, supported by the most expert authorities, clung to the syphilitic conception of the process.

In concluding this part of the paper I wish to thank the various gentlemen whose names have appeared in the preceding pages for their conscientious examinations and diagnostic support, but I also wish to express my gratitude to Drs. Bowen, Towle, Burns, Oliver, C. G. Mixer and R. M. Green, members of our hospital staff, for their kind cooperation in our various investigations.

HISTOPATHOLOGY

The sections which form the basis of the following microscopic details were prepared and stained with carbol fuchsin and hematoxylin by Dr. Richardson, who has kindly allowed me to study them and report my findings.

HISTOLOGIC FINDINGS

1. *Sections from a healing subcutaneous nodular ulceration, excised from the left leg on Aug. 24, 1907.*

Epidermis.—The stratum corneum is very slightly developed and consists of a very fine layer of homogeneous cells free from nuclei. The stratum granulosum is composed of one to four layers of practically normal, keratohyalin-bearing cells. Over the areas where the papillae are absent these cells are most abundant and in some instances exhibit a tendency toward nuclear shrinkage. The stratum spinosum is somewhat acanthotic and as a whole has stained poorly, for cellular boundaries are difficult to trace and this feature is particularly emphasized throughout the apapillary region. The nuclei for the most part are normal, although they incline somewhat toward hypertrophy. The stratum germinativum is well developed and persistent over the greater extent of the rete and here and there contains delicate pigmentary deposits.

Corium.—The papillary layer is unevenly but well differentiated except for a broad area in the center of the sections

where the papillae are wanting. The papillary vessels are not markedly dilated, but their endothelial cells are often swollen and at times vesicular. The perivascular spaces are crowded with mononuclear cells which in some instances block the entire papillary space. The striking feature of the corium is its rich cellular infiltration which is everywhere noticeable—these elements reaching even to the epidermis in the apapillary portion. [This phenomenon is unusual in the recorded histologic descriptions of the disease]. In addition to this general invasion there are band-like and oval areas, corresponding to vessels and sweat glands and follicles, where the cells appear in far greater abundance. These cells are principally swollen connective tissue cells, mononuclear leucocytes and some plasma cells with an occasional epithelioid element. Bacilli are not numerous, judged by the usual standard of leprosy. The elastic tissue is universally somewhat diminished. Near the epidermis elastin appears as short, broken, coarse fibers. In the cellular foci about the vessels elastin is totally wanting while in the neighborhood of the sweat glands it appears only in the structure of the glands themselves.

Gland from the left epitrochlear region excised on August 30.

The tissue is composed of lymphoid, endothelial and connective tissue cells. The acid-fast bacilli are unevenly distributed but wherever present they appear in great numbers, sometimes singly, but oftener in round or oval masses. As a rule the normal tissue becomes poor in cells in the areas of bacterial distribution and not infrequently vacuoles appear with the bacilli arranged excentrically around the vacuolar membrane. The organisms seldom present themselves as well defined rods but seem to be broken up into series of long dots. Zooglyph formation is abundant and characteristic and frequently the colonies are of great size. Blood vessels are rare but are normal when found. The determination of the intra- or extra-cellular emplacement of the organisms is always difficult to determine, but in the present instance it would seem as though the latter position was usually chosen. The gland is distinctly altered by the invasion of the disease. The acini have lost their identity, the vessels are few in number, the individual cells have vanished in many instances, and finally connective tissue is seen replacing the normal elements.

Healed scar from leg, excised on Aug. 30, 1907.

Epidermis.—The palisade layer of the rete is well differentiated and the cells are normal. The immediately adjacent superficial cells are also sound but in the next layers the normal structure is soon lost and the nuclei shrink and disappear, but the spinous processes of the cells persist. In the granular layer the cells are pale. The stratum corneum is thin, but otherwise normal.

Corium.—Papillae are gone and vascular twigs are wanting in the immediate vicinity of the epidermis. The subpapillary vessels, however, are present, but decreased to a minimum. Their walls are normal, with the exception of some endothelial vesiculation and no bacteria were noted either intra- or extramurally. A large portion of the sections show marked cellular and bacillary infiltration—the remainder appearing as delicate scar tissue with moderately numerous, slightly swollen connective tissue nuclei. The deeper vessels are few in number and glands and follicles have gone.

The cellular areas are composed of many plasma cells, especially about the vessels, some lymphocytes and connective tissue cells and finally collections of lepra cells which play a dominating rôle in the picture. They are of various shapes and sizes; some elongated, others round or oval; some are anuclear, amorphous masses, others have generally distributed nuclei, and again others show distinct giant cell distribution of nuclei; some have a few vacuoles, others are composed almost entirely of empty spaces; some present zooglyph bacilli and others contain only one or two scattered organisms. Some of the isolated bacteria appear in close proximity to the epidermis, but none are seen in this layer of the skin.

Right epitrochlear gland, excised Sept. 29, 1907.

This gland differs from that of the left side in the relative paucity of its cellular contents. There is no such solid massing of cells—they are more evenly, though meagerly distrib-

uted. In addition, there are comparatively large areas from which cells have disappeared, leaving a vacuolar network the trabeculae of which are usually lined with bacilli. Another striking dissimilarity is in the arrangement and distribution of the bacteria. Here the organisms are more evenly placed throughout the sections and occur usually as single elements or at times in small clumps. They are seldom found in a zoogical state, but here and there a zooglea is noted in the center of a vacuole.

Once more it is evident that where the bacilli are most numerous there the normal collagenous structure is the poorest. The organisms are nowhere seen in the few vascular walls present. Fibrous tissue is replacing normal structures. Pigment granules, other colored or canary-yellow in hue, large or small, are found scattered throughout the sections.

Small sections from the edge of a one-month-old, mahogany-colored, smooth, shining cicatrix, excised from the leg on October 16, 1907.

Epidermis Rete.—The palisade layer is composed of cubical rather than the ordinary elongated cells. No pigment is found here or elsewhere in the epidermis. The overlying cells become almost immediately horizontal and compact, the spinous processes being rather inconspicuous and the nuclei in many instances being absent or again relatively prominent on account of the retraction of the surrounding cell protoplasm. The granular layer is comparatively thick and its cells also have lost some of their nuclei. The stratum corneum is also comparatively broad, in places compact, while in others the cells are expanded into a loose meshwork of six or seven layers of anucleated cells.

Corium.—The papillar layer is entirely wanting and the orium as a whole is composed of a dense structure of fibrous tissue containing numerous nuclei and supporting scattered upright vessels, some large dilated lymph spaces, abundant brilliant, other colored pigment granules and some sweat glands and ducts. The perivascular infiltrations are not marked except in the subcutaneous fat spaces and in the deeper layers of the corium, but here and around the sweat glands there are very prominent infiltrations composed of plasma cells and lymphocytes, with occasional connective tissue cells, the whole lying in a loose connective tissue reticulation. Except, therefore, in the deepest layers of the corium there are no suggestions of lepromata.

The study of the elastic tissue reveals a strange condition. The larger half of each section shows an excessively abundant normal elastin while the remaining portion is apparently altogether devoid of this element. I can offer no explanation for this phenomenon as the supporting collagen presents no other apparent abnormalities.

The preceding description of the corium affords a good idea of the distribution of the acid-fast bacilli. Where the lepromata appear, there one finds the organisms and the deeper in the sections one looks the more abundant become the bacteria. Therefore, in the upper corium no bacilli are found, in the middle strata an occasional short rod is noted, while in the depths of the layer around the vessels and especially in the subcutaneous fat closely packed, small clumps of the bacilli appear. The individual elements are for the most part short, thick rods while many dots, sometimes in long rows, complete the picture.

Nodule from the lower left turbinate, excised Oct. 29, 1907.

Epidermis.—The epidermis is well preserved in its lower layers. The cells are in the majority of instances well-formed, although the spines are indistinct and the nuclei everywhere emphatically vesicular with prominent nucleoli and numerous chromatin granules. Here and there appear areas of cloudy degeneration with accompanying disturbance or disappearance of nuclei. Karyokinesis is normally abundant throughout the layer. As the free surface is approached cells become amorphous and nuclei vanish.

Here for the first time in this series of sections lepra bacilli are visible in the epidermis. They exist as single, scattered elements or appear in foci, isolated or in small zoogical, round groups. They are in all instances well preserved and are found at all levels of the epidermis. At one point a cell was observed with a beginning vacuole lying close to the

nucleus and containing a clump of bacilli. In some areas it was thought that cellular degeneration and richness in bacteria went hand in hand, but for the most part the germ-bearing cells were well preserved. Interpapillary downgrowths of the rete were abundant here and there, becoming hair follicles containing bacilli within their walls.

Corium.—The picture here is extremely interesting, illustrating as it does the typical young leproma. Here lepra cells are absent and giant cells are represented by one example in fifteen sections. On the other hand bacilli are swarming in enormous numbers, the red coloring of the bacteria being almost as conspicuous as the blue-stained cellular elements. The structure is one of intense infiltration, the nature of the cells being difficult to determine. They are composed of oval or round vesicular nuclei containing numerous chromatin granules surrounded by a small amount of dull protoplasm, the individual cell outlines being hazily demarcated. Whether these elements are distorted connective tissue cells or whether they are lymphocytes is a perplexing question to answer. In addition there are a few polynuclear leucocytes and a very occasional plasma cell.

The papillae are prominent and support very minute vessels containing bacilli intramurally and an occasional bacillus in their lumen. Otherwise, the papillae are filled with the indeterminate, mononucleated cells just described. There is a marked tendency in these papillae toward fatty degeneration, the cells being represented by hollow, yellow spheres bearing an infrequent bacillus but no nuclei. The leproma is practically contiguous with the epidermis—an unusual condition.

Throughout the corium there are a very few contracted blood vessels with somewhat vesicular nuclei and here and there a few bacilli. The lymph channels, however, are numerous and frequently form widely dilated spaces with round vesicular nuclei in their walls, and contain single or grouped bacilli and occasional erythrocytes and mononuclear leucocytes.

In the depths of the sections there are areas of degenerated collagen and elastin, but the sweat glands preserve their integrity and contain no bacilli. The bacillary invasion is extremely marked, the organisms appearing singly or in groups, intra- or extra-cellular, and often in the zoogical state within a round or oval lymph space or else lining these cavities. The unique giant cell noted in these sections contained no bacilli. These acid-fast bacilli everywhere retained the fuchsin uniformly, no interruptions or dotlike structures being visible and this condition betokens their youth and activity.

In conclusion, I wish to thank Mr. L. S. Brown, photomicrographer to the Massachusetts General Hospital, for the two excellent photographs which illustrated so clearly some of the salient points in the histology of this case.

PATHOLOGIC REPORT BY DR. RICHARDSON

The foregoing record of a case of leprosy in the skin ward of this hospital during the service of Dr. C. J. White has many points of interest, one of which emphasizes the value of extended pathologic investigations in the study of the disease.

As Dr. White has stated, I examined in August, 1907, sections from a nodule in the skin taken from a case which clinically Dr. White diagnosed as leprosy (first case). The pathologic examination amply confirmed his diagnosis.

A short time after this examination I received from Dr. White another piece of tissue which had been removed from the margin of an ulcer on the leg of a young woman who had just been admitted to the skin ward (second case). The tissue was hardened, sections cut and stained and report was made that the sections showed acid-fast bacilli and were quite comparable in other respects with sections of tissue removed from typical cases of leprosy.

This report necessitates further study of the case because clinically it was decidedly not one which would

be diagnosed as leprosy. With Dr. White's cooperation portions of tissue from various parts of the body were examined and culture experiments and animal inoculations were undertaken. The results of these investigations were as follows:

Aërobic and anaërobic cultures were made on various kinds of media, as well as on egg medium and other media suitable for the growth of the tubercle bacillus. Cultures were also made in neutral 2 per cent. glucose agar. In this medium an Italian investigator (Campana) recently claims to have been able to obtain a growth of the lepra bacillus.

The tissue material planted in the various kinds of media was obtained under aseptic precautions and the cultures were made by Dr. J. H. Wright. Portions of the tissues used for inoculation of the culture media were hardened and stained and on examination the sections all showed numerous acid-fast bacilli, thus demonstrating the presence of the bacilli in the tissues used for the inoculation purposes.

The various cultures were under observation over a long period of time, but no growth was ever obtained. Other portions of the tissue material used for culture inoculation were placed in the subcutaneous tissues of a large normal guinea-pig and the skin wound closed with sutures. The pig never showed any signs of infection after the inoculation and was allowed to live fifty-seven days, when it was killed. The autopsy showed a normal animal and it was with difficulty that the scar of the inoculation wound could be made out. The inoculation material had apparently been absorbed.

The question of syphilis having been raised, sections from various situations were hardened and stained by the silver salt method, but no spirochetes were ever found.

Many portions of tissue were taken at different times from widely distant parts of the body, and finally a minute piece was excised from the mucous membrane of the nose. The sections from these tissues all showed more or less well-marked chronic inflammatory and degenerative changes, with varying numbers of the so-called lepra cells and acid-fast bacilli. In instances the lepra cells were very numerous and acid-fast bacilli swarmed in these cells and in the subcutaneous tissues.

Dr. White has recorded the histologic details of many of the sections, and I have only to call attention again to a few of the more interesting points.

The presence of the acid-fast bacilli in the cells of the epithelium is well shown in some of the sections, and the so-called lepra cells are notable both for the great variation in their size and for the great numbers of bacilli which they contain. In instances these lepra cells are not unlike giant cells and many of them present a vacuolated appearance. As to what these cells are it is difficult to say, but from their situation in the tissues and their relation to the lymph spaces it is probable that they are endothelial in origin.

In regard to the presence of the bacilli in the cells of the epithelium, it may be said that they have probably reached these cells by way of the lymph stream and possibly some of them may have been carried by leucocytes. In certain sections it is interesting to note the persistence of the bacilli in the subcutaneous tissues beneath the epithelium of one of the healed ulcers. Outwardly the lesion has run its course and is healed, but the section shows the bacilli resting in the subcutaneous tissue biding their time.

It is of interest that only late in the history of the observation of this case were acid-fast bacilli found in the nasal secretion, which, to say the least, is unusual.

The bacilli themselves require but little comment. They are acid-fast, but not so much so as the tubercle bacillus, which they resemble morphologically, and they stain well enough by Gram's method. The slight variation in their morphology is of assistance in ruling out the tubercle bacillus and making it probable that we have to do with the lepra bacillus. We failed completely in our attempts to grow them and they produced no effect whatever on the inoculated guinea-pig.

The pathologic examination of the lesions in this case thus shows both histologically and bacteriologically that these lesions are in all respects comparable with and like similar lesions in individuals who clinically are undoubted lepers. The histologic character of the lesions and the biologic character of the bacillus present in them are also in harmony with those first described as present in leprosy by Hansen in 1871 and since then confirmed and amplified by many investigators.

It remains to be said that recently this unfortunate young woman whose case we have here recorded was sent back by the state to Courland, Russia, as a leper.

I am indebted to Dr. White and Dr. Bowen for much kind cooperation and assistance in the study of the case, and I also am under obligations to Dr. Oliver, house officer in the skin ward, for much assistance during the investigations of this case.

ABSTRACT OF DISCUSSION

DR. JOHN A. FORDYCE, New York: This carefully reported case illustrates the resemblance between the various forms of the infective granulomata. The more we study the cutaneous manifestations of tuberculosis the more we appreciate their similarity to the syphilides, and the same is true of leprosy. Some of the tuberculides, too, are very similar to papulopustular syphilitic lesions. I recall a case of leprosy in which the lesions responded to hypodermic injections of mercury in very much the same way as in Dr. White's case. A man from South America came to the City Hospital with pigmentations on the skin; these had been the sites of infiltration which had disappeared under injections of mercury, and the diagnosis of this case was difficult until the subsequent development of other lesions took place, rendering the real nature of the affection fairly clear.

Another case which recently came to the notice of the Health Department of the City of New York was regarded by the health authorities and by several dermatologists as one of multiple sarcoma. The patient, a man from Courland, had purplish lesions about the ankles identical with those described in Kaposi's hemorrhagic sarcoma. One of these was excised and examined by two expert pathologists, who pronounced it sarcoma, but they failed to look for the lepra bacillus, which was subsequently found in enormous numbers.

Multiplying Words Without Knowledge?—In the Harveian oration, Dr. J. A. Omerod (*Lancet*, London, Oct. 24, 1908, p. 1202) says: "Thus it has been supposed on the analogy of other facts, that hemophilia is a character which becomes dominant or recessive according as the sex of the person is male or female, and that this accounts for the rarity of female bleeders."

Cf. Molière: *Le Malade Imaginaire*: Intermède.

Primus Doctor: Domandabo causam et rationem quare opium facit dormire.

Bachelierus: Quia est in eo virtus dormitiva. Etc.

Another illustration of this was found in a manuscript recently submitted to THE JOURNAL for publication, at the close of which the author enumerated the advantages of his method, and gave as the first advantage: "1. Its marked superiority over any other method."

THE HYGIENE OF TUBERCULOSIS *

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The widespread sanatorium movement has demonstrated the fact that tuberculosis can be arrested in any climatic zone. This, however, should not lead us to ignore valuable scientific facts relative to the influence of certain well-known climates in the arrest of consumption.

As Hippocrates has well said: "Whoever desires to understand medicine thoroughly can by no means neglect the study of the seasons with their variations of the winds, both as to heat and cold, and those peculiar to certain regions."

As the able surgeon knows well his anatomy, so the physician should acquaint himself with meteorologic facts and climatic data relative to well-known health resorts. In climatology there are fundamental principles, a knowledge of which would be of great value to every physician.

The contributions of such men as Solly, Dennison, Vivenat, Copeland and Lombard have been of decided value and a stimulus to others for further research and investigation in this important subject.

3. The preservative quality of light, as might be expected, is more powerful in the direct solar rays, but it can be demonstrated to exist in ordinary diffused daylight.

As for sun heat, Solly says:

Its direct physiologic effects are to increase growth, to lessen the amount of food needed, and to diminish muscular force; the important indirect effects of sun heat are to induce patients to live more out-of-door lives and to keep doors and windows open.

In the Philippine Islands, 15 degrees north of the equator, sunlight and sun heat do not exert any untoward influence on the native population. Dr. D. A. Appel, of the Army Medical Corps, has recently informed me that his observation in the Philippines lead him to believe that tuberculosis is not as prevalent there as it is in our large cities; the poorer classes live mostly in shacks in which ventilation can not be prevented, even where the doors and window shutters are closed.

Atmospheric clearness and transparency, the so-called diathermancy, is a test of purity. Dennison, in his Colorado observations of 1876, proved that it steadily increases with elevation by consecutive thermometric observations of the sun's influence at different heights, and near sea level, and under conditions calculated to exclude radiation.

The increasing purity of the atmosphere, the absence

TABLE SHOWING CLIMATIC CHARACTERISTICS OF VARIOUS LOCATIONS

	Elevation.	Latitude.	Soil.	Temperature.			Humidity.	Cloudy days.
				Annual	Dec.	Aug.	Rainfall.	
Santa Fe, N. M.....	7,000	33.34	Sand and Adobe	51	32	71	16.1	52
Colorado Springs	6,000	38.51	Gravel	47	28	70	15.2	58
Denver, Colo.	5,280	38.76	Gravel and Sand	49	29	76	14.1	63
Flagstaff, Ariz.	6,300	34.26	Gravel and Sand	53	33	74	16.0	51
Oracle, Ariz.	4,650	32.50	Gravel and Adobe	60	44	82	17.7	—
Las Cruces, N. M.....	3,850	32.17	Adobe	59	46	77	7.2	18
Tucson, Ariz.	2,300	32.14	Sand and Gravel	69	50	83	12.0	57
Phoenix, Ariz.	1,100	32.28	Adobe	70	52	90	9.0	52
Yuma, Ariz.	130	32.44	Sand	72	56	96	3.1	18

Most men, I believe, recognize as ideal for the tuberculous that climate possessing the greatest possible amount of sunshine, a pure, dry atmosphere, light winds and porous soil, with elevation sufficient to increase the respiratory act in depth and vigor. All students of climatology recognize the germ-destroying power of sunlight, its power to destroy anaërobic bacteria; the use of the blue, violet and ultra-violet rays of light is an argument as to the value of sunlight in the arrest of tuberculosis. The mental effects of sunshine can not be overlooked, such as the promotion of cheerfulness of disposition and repose of mind in those compelled to live an out-of-door life. Solar light reddens the blood and cures chlorosis in the same manner as it restores the color to plants bleached in darkness.

Downs and Blunt, in 1877, reported to the Royal Society of London the results of their experiments relating to light, as follows:

1. It is inimical to the development of bacteria and the microscopic fungi associated with putrefaction and decay; its action on the latter organisms being apparently less rapid than on the former.

2. Under favorable conditions it wholly prevents that development, but under less favorable it may only retard.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

of dust and smoke, or of moisture, with its attendant infusoria is a decided feature of elevation.

Tyndal has shown that each higher successive stratum contains less and less of infusoria. Mequel of Paris found that with rise in elevation the number of bacteria in 10 cm. space was reduced from 5,500 in the Rue de Rivoli, Paris, and 7,600 in the park of Montisuris, near by, to 600, 85 and 8 respectively in a hotel at Thunet, 560 meters elevation, near Paris, while at 2,000 to 4,000 meters high there were none. Purity, therefore, goes with dryness, coldness and rarefaction of the air incident to elevation. Individuals arriving at a high altitude of approximately a mile above the sea experience an increase in both depth and frequency of respiration; after acclimatization there is a fall in the frequency of respiration, but the breathing continues deep. Spirometric records prove this fact; also, the increased size of the chest in both adults and children.

Time will not permit of an exhaustive consideration of this subject; elevation above the sea, dryness of the air, sunshine, winds, variability of the air temperature, electricity of the atmosphere, are all attributes of climate, and contributing factors in the arrest of tuberculosis. Colorado, northern New Mexico and northern Arizona are illustrative of the high altitudes, while Las Cruces, New Mexico, and El Paso, Texas, furnish a

moderate altitude. Tucson, Arizona, Phoenix, Arizona, and Yuma are comparatively low. The accompanying table of elevation, soil and latitude is appended for reference. I quote from the editorial in *American Medicine*, November, 1907, soon after the publication, in the *New York Dietetic and Hygienic Gazette*, of my article on this same subject:

And what can be said of Dr. Clarence L. Wheaton of Chicago, who says that the ideal climate would be the one possessing the greatest possible amount of sunshine when he should know that for a third of a century there has been obtained the best results in the world in the Adirondacks, which are noted for the absence of sunshine, and if he really exposes his patients to what is now known to be harmful to them, we commend his cases to the trustees of that institution.

We have here evidence of commendable loyalty to the home climate, but it is seemingly unwise to attribute "the best results" in the world to a given health resort; the physician endeavoring to substantiate such a claim would meet with tremendous opposition from all quarters. As for sunlight or even sun heat being harmful to tuberculous patients when properly utilized, the facts herewith presented speak for themselves, no contributions to the literature covering this subject, either by climatologists or phthisiotherapists, have been presented, so far as I am aware, denying the effects here attributed to the sun's influence. The government has established at great expense in Colorado and New Mexico, sanatoria for the treatment of tuberculous soldiers and sailors. These respective climatic zones approach our ideal in the choice of a climate, and the untoward effects of sunlight have not as yet been reported.

To one enlisted in the antituberculosis crusade in a great city like Chicago the study of climatology is of interest and value from a scientific standpoint alone; the rôle it plays here in the solution of the tuberculosis problem is an insignificant one.

The chain of dispensaries established by the Chicago Tuberculosis Institute and their affiliation with regularly organized relief and aid societies will eventually solve the medical and sociologic problem as it is presented to the worker here. The state sanatorium will in time be constructed and enable us properly to utilize the home climate in arresting tuberculosis. The results of the sanatorium treatment in so-called unfavorable climates has far exceeded our expectations. Let us be frank to admit that some climates are better than others; that they possess certain attributes exerting a decided beneficial influence in pulmonary disease; but with all our knowledge of these facts we must know that most of those afflicted should avail themselves of the home environment, for the end of the bow of promise for the average traveling consumptive rests on the mystic shores of the spirit land.

My long residence in Colorado and study of climatic conditions throughout the southwest have convinced me that often without regard to the circumstances of the patient or stage of his disease, it has been the custom to prescribe change of climate. Nothing can be more cruel or irrational than this; in the case of those too poor to afford the expense incident to a change, it opens the door to regrets which are likely to harass the mind when it most requires repose. In most instances the disease progresses more rapidly to a fatal termination. and in many cases the expatriated invalid finds not only a foreign climate but a foreign grave.

There are hundreds of human wrecks scattered over the desert waste of the great southwest, and thousands

wandering in the mountain wilderness of some distant state, struggling for the mere necessities of life, with death an inexorable companion, and all the future dimmed by the shadow of waiting Charon.

Our knowledge of these facts must impress on us all the responsibility we assume in prescribing change of climate, yet let us recognize the fact that in selected cases climate is not all fallacy, and that it plays its rôle in the hygiene of tuberculosis.

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THE CONJUNCTIVAL TUBERCULIN REACTION AS A MEANS OF DIAGNOSIS AND CONTROL *

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It should be plainly stated and clearly understood that tuberculin tests of whatever nature are but confirmatory evidence for the substantiation of clinical findings. A large proportion of cases of pulmonary tuberculosis are capable of being diagnosed by the practitioner from examination of the local focus and consideration of the clinical history. In these cases fever, emaciation, cough with sputum more or less characteristic, and consolidation or destruction of lung tissue are sufficient evidence. These cases, however, form the long list of incurables, and diagnosis has its main importance in so far as it affects prophylaxis. It is in incipient or early involvement that the greatest amount of effort should be exerted toward diagnosis, because these patients are to a large extent curable, and cure means the ridding a community of a class of persons inimical to public health and public economy. These incipient cases of tuberculosis frequently present many elements of doubt as to diagnosis even after the most thorough physical scrutiny. If they are not tuberculous it is a great injustice to ostracise them; if they are tuberculous it is beneficial both to the patients themselves and their fellows that they be treated as such. It is in this class of patients particularly that diagnostic tuberculin tests are warranted. The choice of test to be applied depends on a variety of circumstances and conditions.

It will be granted that whatever tuberculin test is used must be convenient, rapid in execution and manifestation, inexpensive, harmless and dependable before it can be recommended for general use for the examination of one or of many hundred patients. By convenient we must understand tests which are readily submitted to and easily and accurately followed. The rapidity of execution and manifestation of the reaction are points of weighty moment when many people are to be tested in a comparatively short time or when the patient happens to be the support of a family or the manager of a business. In the examination of school children, candidates for life insurance, for the army or the navy, in the routine inspection of factories or lodging-houses, etc., where the expense is borne by municipalities or by private individ-

*Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

uals, the cost of material for the tuberculin test is frequently a prime cause of its not being used. All tuberculin tests must be harmless to the great majority, else this fact will doubtless be strongly urged against their use by unwilling subjects, imperfectly trained physicians or misinformed officials. As a consequence, both prophylaxis and cure will be interfered with. Inasmuch as tuberculin tests are to be taken as confirmatory evidence—evidence which is frequently final and crucial—then it goes without saying that such tests must be dependable.

The conjunctival tuberculin test, as directed to be practiced by Calmette and others, is admittedly the most convenient, rapid and inexpensive means of administering tuberculin for diagnostic purposes. It is impossible to conceive of a maneuver more simple than the instillation of a drop of a non-irritating solution into the conjunctival sac and then in the main merely watching for the appearance of evidences of conjunctivitis in the instilled eye. The rapidity of execution and manifestation of positive reactions make this method ideal when large numbers of patients are to be tested and when time and assistance are limited. The chief objections that have been urged against its employment are that it is not altogether harmless and that there is question as to its dependability. It is with these questions that we shall principally concern ourselves.

A. CONSIDERATION OF THE SAFETY OF THE CONJUNCTIVAL TEST

Harmlessness of Tuberculin Tests in General.—The application of any tuberculin test is essentially the introduction into an organism of a substance which is foreign to it. This foreign substance is in effect a poison, whether it be introduced by the subcutaneous, the cutaneous, the inunction, the rhinologic, the pharyngeal or the conjunctival routes. The manifestation of the body's defensive powers constitutes the tuberculin reaction, modified for the form of application of the test. It may be stated, then, that improperly controlled, whether as regards, amount, time, class of patient or method of application, all tuberculin tests are capable of producing harmful results. This was early shown by Virchow¹ and others respecting the subcutaneous injection of Koch's "old tuberculin," and more recently by Trudeau and Baldwin² and Thelling³ for the Koch's "new tuberculin." Pick⁴ has lately mentioned the finding of fragments of tubercle bacilli in preparations of "old tuberculin *Hochst*," used in the cutaneous reaction of v. Pirquet, and has found that the lesions produced as a result of positive manifestation of the reaction are in many ways similar to tubercles in parts of the body actively infected with the tubercle bacillus. In respect to the conjunctival reaction, attention has been frequently called to inconveniences and actual disability of the ocular apparatus which may follow indiscriminate instillations.

The harmful results from the use of the conjunctival test have mainly followed (a) when tuberculin was instilled into eyes which were not altogether normal, (b) when the patients were not kept under observation but were allowed to become exposed to dirt, mechanical irritants and infection, or (c) when unsuitable preparations of tuberculin were used. Calmette⁵ reports 1,000 per-

sonal observations and 13,000 instillations performed by workers other than himself, and states that in no case in which the tests were properly applied and controlled were there serious complications. Petit⁷ tabulated 2,974 instillations with no ill effects out of 698 positive reactions. Mantoux⁸ mentions no eye injury from instillation of 200 children. Ausset,⁹ commenting on 300 tests also in children, speaks of but one case in which the positive reaction was the cause of any considerable inconvenience. In this child there was a prolonged conjunctivitis following the instillation. He believes that rubbing the eye and secondary infection were responsible for the condition. Etienne¹⁰ tabulates no harmful consequences following the instillation in about 100 old men. In the routine examination of soldiers Simonin¹¹ records one case of kerato-conjunctivitis which he is inclined to consider as evidence of secondary infection. Citron¹² reports no unfavorable results from instillation in 115 cases in which the instillations had been carefully made and the patients watched. In 54 typhoid patients who were instilled with tuberculin, out of 20 positive reactions Cohn¹² noted no harmful consequences. Fritz-Levy,¹³ after 300 instillations, considers the procedure safe when properly carried out. Lignieres¹⁴ observed no ill effects following 200 instillations in cattle. Denis¹⁵ calls attention to the fact that there were no harmful results in his cases even when the subjects were febrile. Levy¹⁶ speaks of no eye complications in 120 instillations. Blum¹⁷ instilled 240 patients, all ages, tuberculous and non-tuberculous, without harmful results. Schroeder and Kaufmann,¹⁸ after 125 instillations, claim that when the eyes are examined before the instillation there is no danger of harmful results. Damask¹⁹ instilled 74 patients, with no injurious effects; Morelli²⁰ tabulates 276 cases, tuberculous and non-tuberculous, but reports no permanent inconvenience to the eyes. In 220 cases Levi²¹ cites two severe reactions: one in an old case of carcinoma with cachexia and the other in a patient with old tuberculous cervical glands. The latter patient had rubbed his eyes. Wolff,²² from 101 observations, mentions two cases in which severe conjunctivitis followed, but fails to make mention of the eye examinations preceding the instillations. Stadelmann²³ reports no severe reactions following instillations in eyes which were negative before instillation. Of 100 cases Gaupp²⁴ noted no severe reactions. Of 310 instillations in tuberculous and non-tuberculous patients Cohn²⁵ mentions no serious ocular disturbances. In our own experience,²⁶ working with 1 per cent. solutions in normal salt solution, of more than 450 instillations in 377 individuals we have observed but four prolonged or stubborn reactions. These were: a case of splenomyelogenous leuke-

7. Petit (quoted by Ausset): *Rev. de méd.*, April 10, 1908.

8. Mantoux: *Rev. de la Tuberc.*, February, 1908.

9. Ausset: *Rev. de méd.*, April 10, 1908.

10. Etienne: *Rev. méd. de l'est*, April 1, 1908.

11. Simonin: *Semaine méd.*, No. 48, 1907, p. 575.

12. Citron: *Deutsch. med. Wchnschr.*, 1908, No. 8, p. 316.

13. Fritz-Levy: *Deutsch. med. Wchnschr.*, 1908, No. 3, p. 194.

14. Lignieres: *Semaine méd.*, Dec. 4, 1907, p. 586.

15. Denis: *Soc. clin. d. hôp. de Bruxelles*, Province med., July 13, 1907.

16. Semaine méd., Feb. 12, 1908, p. 84.

17. Blum: *München. med. Wchnschr.*, Jan. 14, 1908, p. 60.

18. Schroeder and Kaufmann: *München. med. Wchnschr.*, Jan. 14, 1908, p. 62.

19. Damask: *Wien. klin. Wchnschr.*, 1908, No. 4, p. 121.

20. Morelli: *Wien. klin. Wchnschr.*, 1908, No. 3, p. 83.

21. Levi: *Berl. klin. Wchnschr.*, Feb. 3, 1908, p. 261.

22. Wolff: *Berl. klin. Wchnschr.*, 1908, No. 6, p. 295.

23. Stadelmann: *Deutsch. med. Wchnschr.*, 1908, No. 7, p. 271.

24. Gaupp: *Deutsch. med. Wchnschr.*, 1908, No. 7, p. 275.

25. Cohn: *Berl. klin. Wchnschr.*, Nov. 25, 1907, p. 1507.

26. Smithies and Walker: *THE JOURNAL A. M. A.*, Jan. 25, 1908, 1, 259 and herewith.

1. McFarland: *Pathogenic Bacteria*, 1906, p. 335.

2. *Med. News*, Aug. 28, 1907.

3. *Centralbl. f. Bakteriöl.*, July 5, 1902, p. 28.

4. Pick: *Semaine médicale*, Jan. 29, 1908, p. 59.

5. Calmette: *Semaine méd.*, Jan. 22, 1908, p. 46.

6. *Progrès méd.*, Feb. 22, 1908, p. 97.

mia, with old, postoperative cervical glands, leukemic retinitis and iritis with many adhesions; one case of old syphilitic keratitis, with history of early involvement of the cervical glands (before the patient contracted lues); one case of chronic Bright's disease associated with a high degree of arteriosclerosis, marked sclerotic fundus changes and increased intraocular tension; one case of long-standing arthritis deformans with apical tuberculous involvement, who responded to the conjunctival test after a subcutaneous injection of 1 mg. T. A.

Unfavorable evidence against the conjunctival reactions is scant when one eliminates that associated with cases in which patients presented eye changes before reaction came on. It is possible to conceive how in the course of instillation of many eyes even superficial lesions may be overlooked. It is certain that the way the conjunctival test is practiced in many large hospitals and dispensaries, in this and other countries, there is abundant opportunity for such lesions as iritis, keratitis, corneal ulcer, ocular tuberculosis and affections of the vitreous and fundus to escape notice.

After instillation, when people are allowed to go about their ordinary duties with the eyes unprotected, it is not unlikely that positive reactions can be aggravated and prolonged by mechanical irritants. In both children and adults rubbing the eyes has been shown to influence the severity and the duration of the reaction (Ausset,⁹ Citron,¹² Calmette,⁹ Wolff-Eisner^{27, 28, 29} Levi,²¹ the authors²⁶ and others). In hospitals, barracks, schools or neighborhoods where contagious ophthalmias are prevalent a positive conjunctival test may readily furnish a point of least resistance for the beginning of a specific infectious process, as suggested by Citron.¹² Variations in strength and character of tuberculin instilled appear to be responsible for a certain proportion of severe positive reactions and possibly for reaction in people not tuberculous. Solutions of old tuberculin varying in strength from 1 to 10 per cent. have been used, and of the precipitated, dried residue in solution, strengths of from 0.1 to 4 per cent. have been suggested. Preservatives, as glycerin and carbolic acid, have been variously added. One rarely finds mention of whether human, bovine or mixed cultures have been used. The solvents have been either normal salt solution or sterile, distilled water. Frequently the strength of solution has not been varied between children and adults; often many instillations have been made into the same eye at short intervals; the stage of the disease has received little study from most writers. It is not to be wondered at that unlooked-for consequences have sometimes followed.

A few writers have noted general harmful effects, as distinct from local eye changes. Occasionally severe facial neuralgia and headaches have been reported (Demarest and Arloing³⁰ and authors²⁶). Febrile changes have been observed in a few instances (Demarest and Arloing,³⁰ Wolff,²² Treupel³¹ and others). In no case, however, were the general symptoms so marked as in a characteristic subcutaneous tuberculin reaction.

B. CONSIDERATION OF THE DEPENDABILITY OF THE CONJUNCTIVAL REACTION

1. *Necessity for Proper Technic.*—We have before²⁶ called attention to the mistakes which may follow care-

less instillation or the failure to make sure that the tuberculin instilled is not washed out by tears, wiped out or washed out intentionally after the physician has left. We have not thought best to instill into the inner canthus, as suggested by certain French and German writers (Calmette,³² Wolff-Eisner²⁷ and others), but have preferred to hold the lower lid away from the eyeball, and while the patient's head is tilted back and eyeball turned upward we instill the drop into the inferior cul-de-sac. The lid is gently moved over the eyeball a few times, the lids are approximated for a few moments, the patient being directed to rotate the eyeball several times. Both before and after instillation all parts of both conjunctivæ, caruncles and semilunar folds are compared while the eyeballs are rotated in all directions. Abnormalities are noted in writing. Examination after instillation should be made frequently after the third hour.

2. *Consideration of Preparation.*—Our former work was done with 1 per cent. solution (?) of tuberculin prepared according to the formula of Calmette. Our results were in accord with those published by the majority of French writers. The preparation used was demonstrated to contain fragments of bacilli. The tuberculin was said by the manufacturers to be made from virulent, human and bovine cultures of the tubercle bacillus grown on 5 per cent. glycerin bouillon. Inasmuch as later it appeared desirable to the manufacturers to put forth a product absolutely free from tubercle bacilli, a process of extra purification was introduced. With the ordinary microscope this could not be said to contain any fragmented cells. It is not impossible, however, that they may have been revealed by the ultra-microscope, as suggested by Pick.⁴ This second lot of tuberculin, which was supplied us in tablet form, was not dependable. The reactions were poorly manifested and the percentage of positive reactions was considerably lower for all classes of tuberculosis than had been given by our early preparation. We were able to establish this fact by comparative tests, fortunately having preserved some of the first samples submitted to us. Our results agreed in the main with those of other clinics where the second lot of tuberculin had been used in comparison with the first. The reason for this discrepancy involves considerable detail. Suffice it to say that, as shown by Detre³³ and T. Smith³⁴ too much precipitation and heating with hot alcohol, and the use of bovine tubercle bacillus cultures, or material derived from a mixture of bovine and human tubercle bacilli, might reasonably be expected to account for some of the differences noted. A proper preparation should be entirely from human tubercle bacillus growths, from virulent cultures grown on a proper medium. In the consideration of statistics from various sources it is absolutely essential that one know with what preparation the tests were made. The tendency in Germany appears to use solutions of from 0.25 to 4 per cent. "old tuberculin Höchst." The French observers mainly follow the originally marketed preparation of dried, precipitated tuberculin in from 1 to 2 per cent. strength. Distilled water or physiologic salt solution are used as solvents. It has been clearly pointed out by many observers, notably Schmidt,³⁵ Citron,¹² and Damask,¹⁹ that severe

27. Wolff-Eisner: Berl. klin. Wchnschr., 1907, No. 22.

28. Wolff-Eisner: Beitr. z. klin. d. Tuberk., 1908, ix, 1-189.

29. Stadelmann and Wolff-Eisner: Deutsch. med. Wchnschr., 1908, No. 5, p. 181.

30. Province m^éd. Oct. 12, 1907.

31. Treupel: München. med. Wchnschr., Jan. 14, 1908, p. 66.

32. Calmette: Rev. Internat. de la Tuberc., xiii, No. 2, 1898, p. 119.

33. Detre: Wien. klin. Wchnschr., Feb. 6, 1908, p. 173.

34. Smith: Jour. Exper. Med., 1898, p. 451.

35. Schmidt: München. med. Wchnschr., Jan. 14, 1908, p. 66. (Breslau cases.)

conjunctival reactions may be brought on by the use of 1 per cent. dried "tuberculin *Hochst.*," whether glycerin mixed or free, and that 0.1 per cent. strength is sufficient to bring about results corresponding to the preparation of 1 per cent. strength sent out from the Pasteur Institute at Lille. It has been well shown also by Damask¹⁹ that the Pasteur Institute preparation is at least two and one-half times as effective as is the 1 per cent. solution of "old tuberculin *Hochst.*" It thus appears that when possible tuberculin prepared according to Calmette's originally described method is the most reliable. The variations in the results stated with the use of other preparations may also have been influenced by the variation in virulence of the growths from which the tuberculin was derived, the use of bovine cultures in the attempt to bring about reaction in humans, the use of bacilli grown on improper media, and the classes of cases in which each of the various forms of tuberculin was used. It will be readily understood how difficult it is to review statistics of reported work when such work has been done under so great a variety of conditions. It seems proper to compare separately the results from German and from French clinics.

3. *Results in Cases Known to Be Tuberculous.*—A summary of 1,554 cases of tuberculosis, all stages, from the reports of German observers (Fritz-Levy,¹³ Daus,³⁶ Levy,¹⁶ Blum,¹⁷ Cohn,²⁵ Morelli²⁰ and Gaupp²⁴ reveals positive conjunctival response in 86 per cent.

Of more than 14,800 French cases tabulated from the writings of Mantaux,⁸ Petit,⁷ Ausset,⁹ Comby,³⁷ Calmette³⁸,⁹ and others, positive evidence was given in 93 per cent.

In our own experience 15 cases of incipient pulmonary tuberculosis were all positive, of 20 cases of bone tuberculosis 80 per cent. were positive. In 74 cases of moderately advanced pulmonary tuberculosis positive manifestations were secured in 75.6 per cent., with slight ocular changes in an additional 13 per cent. Of 42 cases of pulmonary tuberculosis, including moribund and miliary tuberculosis, positive reactions were secured in 59.5 per cent., with suspicious eye changes in an additional 15 per cent. In summary, of 151 cases of known tuberculosis, all stages, positive manifestations were secured in more than 79 per cent. In incipient and early cases positive manifestations were secured in 93 per cent.

4. *Presence of Reaction in Doubtful Cases.*—Of 476 cases in which tuberculosis was suspected, German statistics (Blum,¹⁷ Schroeder and Stadelmann,²⁹ Morelli,²⁰ Levi,²¹ Wolff²² and Gaupp²⁴) exhibit positive reactions in about 51 per cent.

With French writers the proportions are rather higher. Of 273 cases (Ausset,⁹ Petit,⁷ Grasset and Rimbaud,³⁹ Dufour⁴⁰) 64.5 per cent. showed positive ocular manifestations. In Calmette's résumé of 14,000 cases he states that 61 per cent. of patients suspected of having tuberculosis gave distinct reactions.

In our own series, of 13 suspected tuberculous patients positive conjunctival changes were noted in 9, or in 69 per cent. It is possible that we secured a higher percentage of reactions than German or French writers because we were able to keep our cases under observation

constantly from the time of instillation. Perhaps, however, were our series larger we should approach proportions similar to those of other workers.

5. *Presence of Reaction in People Apparently Well.*—Of 1,379 cases not clinically tuberculosis in the writings of German workers (Fritz-Levy,¹³ Blum,¹⁷ Schroeder and Kauffmann,¹⁸ Morelli,²⁰ Levi,²¹ and Cohn²¹) there were 9.9 per cent. positive conjunctival tests.

In Calmette's summary 18 per cent. of those not suspected of having tuberculosis gave positive manifestations. He suggests that this is in proportion to the gross percentage of tuberculous lesions found at autopsy. In Petit's⁷ summary of 938 patients, many of whom were children, about the same percentage was obtained. He calls attention to the fact that many of his patients had adenoids and enlarged tonsils. Etienne,¹⁰ working with old men, was able to secure positive conjunctival manifestations in 66 per cent., which he mentions is about the same proportion as Bruardell claims tuberculous lesions are found in the aged at autopsy.

Our own work shows that of 205 cases not clinically diagnosed as tuberculous 13 revealed positive ocular changes. This percentage, 6.8 per cent., is lower than that noted by other writers. Explanation might be found in the fact that many of our hospital patients were anemic, some were tested with poor tuberculin, and there were many young adults. Of 76 instillations in young men apparently well, but two gave positive ocular manifestations. In both of these there were fairly well marked signs of tuberculosis.

6. *Presence of Positive Conjunctival Reactions in Diseases Other than Clinical Tuberculosis.*—Much proof has been advanced to show that the conjunctival reactions are not specific for tuberculosis. The same sort of proof has long been held against all forms of tuberculin test, particularly the subcutaneous. It has long been maintained that patients affected with syphilis, leprosy and actinomycosis respond to the subcutaneous injections. Probably the same might have been noted had tuberculin been used subcutaneously in various acute infectious diseases, as typhoid fever, scarlet fever, articular rheumatism, etc. The contraindication to the use of the tuberculin may have been responsible for the lack of positive evidence. We have not been able to discover work in which negative evidence has been furnished. It has been urged by many that in typhoid fever, particularly, conjunctival tuberculin reactions may be obtained. The excellent work of Kraus, Lusenberger and Russ,⁴¹ and the reports of Cohn²⁵ and Blum,¹⁷ seem to furnish evidence that the occurrence of the reaction is not altogether accidental. The reaction appears to be most constant in convalescents. It is not always obtained, as shown in Levy's¹⁵ cases. In one of Montagnon's⁴² typhoid cases, in which the patient died, abundant evidences of tuberculosis were discovered. In our own series we failed to get positive evidence after two instillations in a case of typhoid in a young adult. A case of miliary tuberculosis suspected of being typhoid for some days gave positive conjunctival reaction after injection subcutaneously of 1 mg. of TA. Fortunately for clinicians and public health officers, incipient tuberculosis is rarely mistaken for typhoid. When the two exist together, then again one must emphasize the fact that all tuberculin tests are but confirmatory evidence. Several writers (Citron¹² and Blum¹⁷) call attention to

36. Daus (quoted by Fritz-Levy): *Deutsch. med. Wchnschr.*, 1908, No. 3, p. 194.

37. Comby: *Semaine méd.* July 31, 1907, p. 271.

38. Calmette: *Progrès méd.*, Jan. 25, 1908, p. 45.

39. *Province méd.*, July 13, 1907.

40. Dufour: *Société Méd. hôpitaux, Semaine méd.*, July 24, 1907, p. 338.

41. Kraus, Lusenberger and Russ: *Wien klin. Wchnschr.*, 1907, No. 45, p. 1385.

42. Montagnon: *Presse méd.*, July 20, 1907.

the fact that positive conjunctival reactions may be obtained in syphilitics and cases of acute articular rheumatism. Citron⁴² suggests that the reaction may be due to old lesions that make themselves manifest as a result of the secondary change. Blum¹⁷ has noted the reaction in nine cases of scarlatina, in eight cases of lobar pneumonia and in six of sepsis. He does not furnish evidence to show that in these cases it was possible to exclude tuberculosis, typhoid, syphilis or previous eye lesions.

The experiments of Arloing⁴³ have been frequently cited as indicating the non-specificity of the conjunctival test. In brief, they consisted in injecting subcutaneously into rabbits, supposedly non-tuberculous, successive doses of tuberculin, diphtheria toxin, typhotoxin and staphylo toxin. The eye reaction in all cases was found negative before the injections. After the eighth daily dose of toxins eye changes were noted in all classes of animals, particularly in those which had been injected with typhotoxin and tuberculin. The serum reactions of each remained negative during the entire list of tests. At postmortem no evidences of tuberculosis were discoverable in any of the animals. Criticism of this work might be freely offered. There were no control rabbits. The rabbits were not protected after instillation; reactions were not noted until after the eighth dose of subcutaneous toxin, or about at the tenth day, a proper period of sensitization. There were no rabbits injected at the same time with tuberculin subcutaneously, with note as to whether or not they developed fever reaction. A series of four rabbits is too small a number from which one may draw conclusions. Finally, clinically, there should be no difficulty in distinguishing between tuberculosis, typhoid fever, diphtheria or sepsis. De Lapersonne⁴⁴ calls attention to the fact that reaction similar to the conjunctival test may be produced after intoxication with abrine and serpent venom. Inasmuch as these occurrences are infrequent, the observation can have little practical value, although it has considerable scientific interest.

7. *Presence of Positive Conjunctival Reaction in Cases in Which Tuberculin Has Been Used Subcutaneously, Either for Diagnostic or Therapeutic Effect.*—This is a factor that has doubtless led to much confusion. If, after patients have received two subcutaneous injections of tuberculin, according to the method of Koch, at an interval of several days, without reaction, and then positive reaction is manifested when tuberculin is instilled on the conjunctiva, discredit is likely to be thrown on the method. The work of many writers (Dumarest and Arloing,³⁰ Baldwin,⁴⁵ Hutchins,⁴⁶ Fritz-Levy,¹³ Cohn²⁵ Damask,¹⁹ Stadelmann and Wolff-Eisner,²⁹ the authors²⁸ and others) demonstrate that in patients who have received two or more cutaneous injections for curative or diagnostic purposes conjunctival reactions may be produced. may be brought out after being negative, may be aggravated if already present, or may become again evident weeks after they have subsided. The patients who have been the longest under treatment with subcutaneous injections show a lower percentage of response, with frequently less pronounced reaction, than do those in whom there have been few, fairly large doses of tuberculin, subcutaneously (as when tuberculin is used diag-

nositically in ascending doses). Patients under treatment with tuberculin may, however, fail to react, as shown by Baldwin⁴⁵ and Schroeder and Kaufmann.¹⁸ Cases of incipient tuberculosis show more prompt and vigorous responses than do middle or late stage cases (Damask¹⁹). Patients with tuberculosis frequently show violent reaction after subcutaneous injections when the tuberculin has been instilled in the same eye. Patients not tuberculous may exhibit conjunctival reaction after several injections of small doses of tuberculin subcutaneously (Cohn²⁵ and authors²⁶). This is particularly so when the subcutaneous injections are continued at intervals after the tenth day. There is less response when the subcutaneous injections are small, as TR for therapeutic effect, than when the dose is fairly large, as TA for diagnosis.

8. *Comparison of Results Obtained with Conjunctival Tuberculin Tests and Various Other Tests.*—As yet there is little literature available on the inunction, the rhino-tuberculin⁴⁷ and the pharyngeal-tuberculin⁴⁸ tests, so they may be left out of consideration. Statistics compiled from many sources seem to point to the fact that, for greatest accuracy when the test can be carried out on hospital or sanitarium patients, the subcutaneous test is somewhat more reliable than cutaneous or conjunctival tests. Unfortunately, however, concerning the subcutaneous method statistics are usually quoted in regard to its diagnosis only of early or incipient cases, which are fever-free, whereas statistics are quoted for conjunctival and cutaneous tests from whole number of patients tested, be they incipient, moderately advanced or moribund cases. The subcutaneous method, for obvious reasons, has been little tried on apparently healthy persons. When it has, results have been not altogether favorable. (Franz obtained positive reactions in 61 per cent. of "able-bodied recruits" to the Bohemian army.) One can not conceive that all these were syphilitics, lepers, actinomycotics, trypsin or peptone poisoned individuals!

When the conjunctival, the cutaneous and the subcutaneous tests are compared as regards incipient or early stage cases, the percentages of positive reactions do not greatly vary, and, after all, this is the stage when tuberculin should be used. Calmette's statistics on 14,000²⁴ cases give the percentage of positive reactions with the conjunctival, early cases as 92 per cent. Schroeder and Kaufman²⁸ in 971 cases of tuberculosis as 88.5 per cent. In our own series the conjunctival reaction was positive in 93 per cent. of early and moderately advanced cases. It is difficult to get actual figures on the subcutaneous method. In but very few clinics, however, are percentages over 90 exceeded.^{23, 24} It is not quite proven that repeated injections of tuberculin for diagnostic purposes are not capable of ultimately producing reaction in cases which are not tuberculous or where the lesions are very old and inactive. Especially does this seem so where from six to ten injections are made during a few weeks. The securing of reaction in incipient cases by the repeated injection of the same size dose, as shown by Hinman and Wolman,⁴⁹ is very significant. Doubtless hypersensitization may be thus produced quite as distinctly as with the conjunctival method. In respect to the relative merits of the cutaneous (v. Pirquet's) and the conjunctival tests, numerous comparisons are available.

43. Arloing: *Prov. méd.*, Feb. 1, 1908, p. 54.

44. De Lapersonne: *Presse méd.*, Dec. 7, 1907.

45. Baldwin: *THE JOURNAL A. M. A.*, Dec. 14, 1908, xlix, p. 1969.

46. Hutchins: *Therap. Gaz.*, Dec. 15, 1907.

47. Lafite, Dupont and Molinier: *Jour. de méd. de Bordeaux*, Feb. 16, 1908.

48. Plehn: *Deutsch. med. Wchnschr.*, 1908, No. 8, p. 315.

49. Johns Hopkins Hosp. Bull., Aug. 1, 1907.

In 114 cases of tuberculosis, Morelli²⁰ obtained positive cutaneous reaction in 98 per cent. and positive eye changes in 86 per cent. He neglects to state which test was applied first. It is possible that the one exerted a perceptible sensitizing effect on the other. In cases of suspected tuberculosis, the v. Pirquet reaction was positive in 94 per cent., the conjunctival in 47 per cent. In 96 cases not clinically tuberculous, the cutaneous reaction was positive in 21 per cent. of the cases, the conjunctival in 11 per cent. The latter figure agrees rather closely with that obtained by other workers. There is a question as to whether or not secondary infection does not increase the percentage of positive reactions, so-called, to the v. Pirquet reaction. This appears to be particularly likely when dispensary patients are treated and then allowed to depart with the skin improperly protected. Several of Morelli's cases showed at autopsy old tuberculous processes when both conjunctival and cutaneous reactions had been negative. Wolff's²² figures are slightly in favor of the skin test, especially for children. He has noted radiograph indications of infiltration when the cutaneous reaction was negative. Stadelmann²³ cites a case in which the cutaneous reaction was positive and the subcutaneous negative until injection of 5 mg. TA. He is inclined to think that the conjunctival test is valuable in early and suspected active cases, while better results may be obtained with the cutaneous test in quiescent lesions. He calls attention to the prognostic value of both reactions. Usually they both appear with severity in inverse ratio to the virulence of the infection. This severity is in direct proportion to the patient's protective powers. The instillation, application or the injection of tuberculin derived from bovine tubercle cultures might affect the results with the various tests, as suggested by Detre.²³ Wolff²² states that in his experience the cutaneous and the conjunctival tests have shown very similar results. Other statistics might be cited.

In general, then, it may be stated that when properly applied and controlled the conjunctival tuberculin test shows results which compare favorably with those obtained by the subcutaneous and cutaneous methods. The facility with which this test may be applied and wider range of its usefulness speak strongly in its favor. It has been suggested that the subcutaneous injection might be used to supplement the conjunctival test (Citron,¹² Vallée,⁵⁰ Schroeder and Kaufmann,¹⁸ Stadelmann,²³ Fritz-Levy¹³ and others).

9. *The Question of Interpretation of Positive and Negative Results.*—This question is one which deserves attention. It appears that when the conjunctival reaction is prompt (typhoid, mechanical irritants in the eye, or irritant properties in the tuberculin instilled being excluded, and with the use of a suitable preparation in so far as strength, character of bacilli, etc., are concerned) there is good reason to consider that the patient is tuberculous. The test in these cases will doubtless be readily confirmed by local or general examination. A negative reaction in a suspected individual should not be taken to mean that the case is non-tuberculous. In doubtful reactions, cytologic examination for polynuclear leucocytes in the eye discharge may be made, as suggested by Lafite, Dupont and Molinier.⁴⁷ It is best, however, to make a second instillation after two days' interval in the eye not previously instilled. It is sometimes advisable to use

stronger solutions at this instillation. (Eppenstein,⁵¹ Fritz-Levy¹³ and others). If this second instillation is negative after two or three days one may safely say that the patient is free from active tuberculous lesion. Reinstillation later into the first eye might be possible with the same strength solution as first used, but after five days there is strong probability that the second instillation may produce local hypersensitization and reaction in people not actively tuberculous, or a very severe reaction in cases tuberculous. In more than 100 instillations in moderately severe and moribund cases, we have never seen a case fail to respond to a second instillation of 1 per cent. solution in the same eye, when such instillation were made within three days. We have frequently noted that people not tuberculous clinically failed to show ocular changes, when from three to five instillations were made in the same eye within ten days. We have also reported instances²⁶ in which after the tenth and as late as the twentieth day repeated instillation of 1 per cent. freshly made solution failed to produce conjunctival changes in persons not clinically tuberculous. In moribund cases we have had negative reactions to one instillation made in eyes which had been instilled a month previously, but positive manifestations to second instillation made two days later in the same eye. We have also noted response to the second instillation made in the previously non-instilled eye.

The local anaphylaxis in tuberculous individuals may persist for weeks and even months. This has already been commented upon in the literature. We have noted a case in which conjunctival changes appeared spontaneously three times in an eye where rather severe reaction had followed the second instillation (made within four days). The case was one of old tuberculous hip-joint disease. During five months following the first instillations the patient had three attacks of night pains, tenderness over the hip joint, with disability. Each time conjunctival changes appeared and lasted for from one to three days. The first spontaneous reaction was the most pronounced. These facts are significant. Patients should always be questioned regarding whether or not they have previously submitted to the conjunctival test, and if so, with what result. We have never seen, either in the literature or our own experience, a case in which prolonged sensitization was maintained in patients free from tuberculous taint.

In our work we have made an attempt to correlate the instillation time with respect to the clinical symptoms, especially with regard to the instillation in patients febrile and not febrile. In a few instances of early and moderately advanced pulmonary tuberculosis with fever, we have secured prompt and vigorous responses to the first instillation. But we have also noted reactions equally prompt and equally vigorous in patients who were afebrile. We have never, however, failed to secure prompt and well-pronounced response in febrile tuberculous patients, whereas in many cases of tuberculosis which were afebrile we have secured delayed and not well-marked conjunctival changes. This fact suggests that in incipient or early cases of pulmonary involvement better results could be expected from instillations made in the afternoon, when such patients are apt to have rises in temperature. The point requires more confirmation however.

It would appear from the foregoing discussion of the work of others and ourselves that the questions of the

harmlessness and the dependability of the conjunctival reaction to tuberculin were fairly well supported, and that as a method whereby confirmation of more or less extensive physical examinations is desired it has numerous advantages over other forms of tuberculin test. In the rapid examination of large numbers of cases, as for example, in the army and navy, public institutions, schools, manufacturing establishments, immigrants, etc., the method appears to be of great worth. It should be preceded or supplemented by local examination in all instances before final judgment can be given. It may be combined satisfactorily with the subcutaneous method when deemed necessary as the weight of evidence appears to be that these reactions reinforce each other.

In the routine examination of many individuals it appears desirable that a general scheme of work be followed out, that the best results may be obtained.

First: Accurate register of each patient tested should be kept in convenient form. A chart enables us to watch each patient thoroughly and furnishes a valuable lot of information for the subsequent study of cases and the reaction. On this chart is recorded the patient's name, age, sex, preparation of tuberculin used, eye in which it is instilled, date and time of instillation, reaction, including time beginning, degree and time ending, and whether slight, moderate, pronounced or very pronounced.

Second: A proper preparation must be insisted on. In all instances it should be freshly made—with sterile diluents—physiologic salt solution or water. That manufactured according to the original method of Calmette appears most desirable. It is conveniently marketed in 1 per cent. solution and in powdered form. We have always preferred to use sterile, physiologic salt solution as a diluent, and have found the 1 per cent. solution satisfactory. It might be advisable in picked cases, *e. g.*, children and febrile patients, to use the 0.5 per cent. solution. If preparations of "old tuberculin" are used, then solutions of various strengths might be prepared according to the method of Eppenstein⁵¹ (1, 2 and 3 per cent.) or of Fritz-Levy¹³ (0.5, 2 and 4 per cent.).

In children, and particularly in scrofulous patients, even weaker solutions than 0.5 per cent. may be used with satisfactory results. If a preparation of the "dried tuberculin *Hochst*" be used then 0.1 per cent. solution is amply strong. If stronger are employed severe and prolonged reaction, with perhaps serious damage to the eye may follow.

Third: Examination of the eyes for evidence of old or recent lesions.

Fourth: After instillation, the eye should be protected from rubbing, mechanical irritants, injury and secondary infection. This may be managed in adults by giving them simple directions; in children celluloid shields or eye-pads may be adjusted. Violent reactions can be appropriately treated by cold applications, mildly antiseptic eye washes, or washes containing astringents.

Fifth: Reinstillations should be made in the eye not first instilled, and if the preparation is from old tuberculin, the strength of the solution should be increased in order to obtain the best results. If instillations are made in the eye first instilled, then positive evidence is not possible after the fifth day. If instillations are made in the other eye positive evidence is doubtful after the tenth day.

CONCLUSIONS.

In the routine examination of many individuals tuberculosis is readily overlooked unless some form of tuberculin test is administered. These tests, however, are but confirmatory of physical findings.

The conjunctival tuberculin test as directed to be practiced by Calmette and others is convenient, rapid in application and manifestation, inexpensive, can be used in febrile cases, is practically harmless when properly carried out and controlled, and is, in the hands of the general practitioner, for incipient and early cases, as dependable as are any other forms of tuberculin test.

Proper technic, proper preparation, discrimination in the interpretation of both positive and negative reactions, and care of the patients following instillation are necessary for the success of the reaction.

Patients presenting disease of the eye other than simple conjunctivitis should not be instilled.

Second instillations should be made in the opposite eye. Positive reaction in this is dubious after the tenth day, if the suspected focus is not examined.

Care should be taken to eliminate recent typhoid, colon infections, syphilis and acute infections, as diphtheria, sepsis, scarlet fever and articular rheumatism. Patients receiving tuberculin subcutaneously for diagnostic or therapeutic purposes may be expected to react, frequently irrespective of active tuberculous foci.

Prompt, positive manifestation generally means an active focus with good systemic resistance. This is especially so in early cases. Delayed response, with feeble ocular changes, may be considered as of bad prognostic import in both early and late stages of the disease.

Severe conjunctival disturbances may result from re-instillation in the same eye, particularly in tuberculous individuals, and after the tenth day in others. Sensitization of the conjunctiva may persist for months and re-instillation may be responsible for violent reaction. This may be aggravated by synchronous or subsequent subcutaneous use of tuberculin.

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EARLY DIAGNOSIS OF TUBERCULOSIS AS A
MEASURE OF CONTROL,

ESPECIALLY THE RELATION OF TUBERCULIN THERETO *

WILLIAM A. EVANS, M.D.

CHICAGO

The Department of Health of Chicago began the registration of consumptives July, 1907. A rule was passed requiring it. At the time the number of available beds for consumptives was 325. These were for late cases. In addition the Tuberculosis Institute was maintaining a sanitarium for early cases. The capacity of that institution shortly after July was increased to twenty-six beds.

There are two tent colonies near the city. One, that of Drs. Pettit and Butterfield, was then in existence; that of the Homeopathic Medical Society was founded last year. The general hospitals were taking a few cases, generally without plain, straightforward acknowledgment of the fact, and lacking the better control which goes with candor.

The experiences of these institutions was that consumption was not being diagnosed early enough for successful handling. Occasionally a diagnosis was made when an arrest could be accomplished in less than five months. Rarely one was determined when an arrest in two or three months was possible. The usual favorable case, according to the opinion of the diagnostician, required from one to three years of expensive maintenance without any earning power during the interim. Returned to work with his disease arrested, his outlook was a life of diminished capacity for productive work with a high probability of recurrence of his disease.

Viewed strictly from the economic standpoint, it is doubtful if anything is gained by curing these two to three year cases. I have in mind one institution which has been confronted with a great dilemma, due to two factors: (1) The physicians in attendance are not diagnosing the disease until it has reached such a stage that more than two years are required for arrests; (2) the patients who constitute the clientele are not financially able to withstand the needed expense.

This, as you see, leaves another problem untouched—the late and dangerously contagious consumptive. Our provision for these patients is much more adequate than that in any other direction, as it is most immediately vital.

As a means to reporting, we adopted disinfection of premises previously occupied by tuberculous patients and the use of tuberculin. All such premises are disinfected and instructions for cleaning are given. The number of premises disinfected for tuberculosis since Jan. 1, 1908, is 1,268, with 6,673,500 cubic feet. It has been unopposed, except in two minor instances. We have given away more than 500 doses of tuberculin. Our *Bulletin* has carried seven notices as to early diagnosis and the use of tuberculin therein; 928 cases of living tuberculosis have been reported since Jan. 1, 1908. The newly established tuberculosis dispensaries, six in number, are valuable factors in the discovery of consumption.

The methods employed are three days' preliminary observation of pulse and temperature, at 8 a. m., 12 noon, and 8 p. m. Late in the evening of the third day

4 milligrams of old tuberculin are given hypodermically. The temperature and pulse observations are made every two hours during the next day. A rise in temperature to 101.5 F. + is held to be a reaction, when there is a rise of pulse of 15 beats, a general and local reaction. As soon as the reaction is definite, control of the neuralgias with phenacetin is advised.

We have also made use of the ophthalmic tuberculin test. We reserve judgment as to its value. We are now engaged in testing 1,500 cows with it, doing controls with the hypodermic method. We endeavored to determine that dose which would give clear-cut, definite reactions in those cases which were of some clinical importance. A larger dose would discover some cases with quite well encapsulated small lesions, oftentimes limited to the lymphatic glands. Many of these cases are of small clinical importance and should not be handled as one would a clinical case. A smaller dose would give reactions so mild that a man of considerable experience would be required to interpret them.

I have in mind now a case of very chronic pleural infection in which the other method of administration gave a result which was variously interpreted by many observers.

The method which begins with a progressively increasing dose is open to the objection that greater skill is required in interpreting the result, and the coefficient of certainty is lowered and the progressing immunity adds a factor of uncertainty. While there is not the same degree of immunity as veterinarians have noted with regard to the use of full doses, it is, in some degree, a factor. I know of no observations tending to prove that the principle of sensitizing has any bearing on the conditions which obtain in examinations for diagnosis.

The objection is that the patient is uncomfortable for twenty-four hours. The claim that there is danger will be discussed separately. The discomfort can be made slight with antineuralgics. In my experience, the patients have recognized that the proceeding meant too much to be obfuscated by minor considerations.

The second question is the danger. I have no evidence that leads me to believe that in this respect the minor dose method differs from the other. Therefore, the question of danger is the danger of the use of tuberculin for diagnostic purposes. The arguments for its danger may be divided into two groups, (1) the histologic and bacteriologic, and (2) the clinical. The first teaching, that of Virchow, was that miliary generalization of tuberculosis was due to degeneration of the granuloma tissue with discharge into the blood vessels. The proof now is quite conclusive, to my mind, that blood generalization is by thoracic duct transmission. Longcope and Whipple have proved this. The miliary diffusion so very frequent in tuberculosis is of this origin. Tuberculous intestinal ulcers were found in 89 out of 161 cases of pulmonary tuberculosis coming to autopsy at Cook County Hospital.

The observations of Weigert and Benda of the histology of tubercle in relation both to the new vessels of the tubercle and to the pre-existing blood vessels is proof about as conclusive as that of Longcope and Whipple.

The next theory is that when tuberculin is injected there is a lowering of the opsonic index. This presupposes that tubercle bacilli are being discharged into the blood lymph at some time during the period of

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opsonic depression. There is no proof that such discharge is occurring so frequently that there is likelihood of its occurring at any given moment. So far as I know, however, there is no proof of such a spreading coincident with lowering of the opsonic index due to tuberculin.

It is difficult to weigh the clinical data. I have not yet read of a case in which there was a clear demonstration of cause and effect, or anything to prove or even indicate that the use of a single dose of 4 milligrams of tuberculin increased the incidence of generalizations. My autopsy experience, fairly large, has taught me that periodic partial bacillary diffusion is the rule in long continued phthisis.

In the Knopf case it is impossible to determine whether the result is coincidence or cause and effect. The Billings cases, two in number, belong in the same category. I have not been able to get the data in the Edwards and Greene cases. Letters to them elicited no more data than those given in their books and I am not able to draw a conclusion from them. Trudeau writes of a man who was to have been injected at a given time, but who had a generalization just before the proposed injection. He said: "Had the generalization followed the injection, it would have seemed an incontrovertible case."

My experience is limited to a moderate personal use extending over ten years, and a consulting relation in the hospital where it has been fairly frequently used for ten years. Results in 100 cases have been published. A second hundred cases have been studied. The Chicago Department of Health has publicly advocated its use for nearly a year, and 500 doses have been distributed. Probably in other capacities I have sent over 200 additional doses. I have heard of no ill effects in any of these cases. We are justified in concluding, therefore, that the incidence of dissemination is but low.

The certainty of the test needs no argument. The advisable dose in order to determine the limitation of discovery is a fair field for discussion.

The question now arises, do we need this means of diagnosis? This question should be asked, not of the most skilled specialists, but of the rank and file of the profession, those who are consulted before the patient has developed much of a symptomatology.

Consideration of history in the afebrile cases is of but little value in the hands of the inexperienced. Physical examination requires too much technical skill in the earlier cases for the average practitioner. Sputum examination does not reveal the disease when it is curable without great drain on the resources. Fever, rapid pulse, emaciation, sweats, are, of course, not to be considered in discussing early cases.

There is urgent need for a test easy of application, requiring no technical skill and not requiring much of experience to evaluate. With present methods for the next quarter of a century the average diagnosis will mean death after a prolonged illness.

Let us suppose, however, that there is some proof that bad results have followed the use of tuberculin for diagnostic purposes. The question next arises, is the frequency of diffusion and the degree of danger therefrom surpassed by the benefit to be derived. Diffusion is not a rare incident in consumption. It is the rule, or nearly so. Many of the resulting lesions are found cured at autopsy. The bearing of this is that diffusion,

if it does result from tuberculin injection, is not as appalling as if it were otherwise unknown.

Weighing all of the factors, valuing the incidence of danger, on the one hand, and the increased curability and the decreased length of illness on the other—the possible harm, the probable gain, the weight of each—it is my judgment that no health officer with a conscience can fail to advocate the diagnostic use of tuberculin in the human subject.

A surgeon contemplating an appendectomy weighs the danger of the anesthetic and of the operation, he weighs the advantages. He acts on the balance of favor, one way or the other. Would his conscience allow him always to refuse operative procedure because there has been a rare case of death from anesthesia?

103 State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. EVANS, WHEATON AND SMITHIES

DR. S. A. KNOPF, New York: It has been said here this morning that the man who does not use tuberculin in diagnosis of tuberculosis is a man without a conscience. I am guilty of not having used tuberculin or recommended its use, except once or twice as a therapeutic means in a case when there was neither progress nor the contrary. I have the consolation of believing that in opposing tuberculin when they used to give 15 to 20 mg., I have helped in some measure to reduce the quantity to the small doses now in use. My distinguished friend, Dr. Evans, said he used 4 mg. When he said that I heard some whispering to the effect that that was altogether too much. I believe that early physical diagnosis is more carefully and frequently practiced, because of the opposition to tuberculin as a means of early diagnosis. I believe that if every practitioner would feel that the simple injection of 1 or 2 mg. of tuberculin would surely reveal the presence of tuberculosis, it would do away with physical diagnosis. I believe that careful physical diagnosis is still very important and absolutely essential as a preliminary to any one of the three tuberculin tests. That the tuberculin test is not infallible, we all know; even the tuberculin enthusiasts will admit that, but since we have so many means of using tuberculin in small and consequently less dangerous doses, I am less opposed to it. Still, even with small doses we have had the reaction in actinomycosis and in syphilis and in pure chloranemia. The examination of the sputum was once thought to be the only means of diagnosing tuberculosis, but I do not agree with that statement. It is true that you must easily find tubercle bacilli when there is a large disintegration; nevertheless, if the bacilli are not found at the first examination, then attempts should be made the second, third, fourth and fifth time; I know Dr. Brown has found the bacilli on the twentieth trial. It is something I would not wish to neglect in favor of tuberculin tests. But, of course, it must not be forgotten that while the finding of the bacilli in the sputum proves beyond a doubt the presence of a tuberculous lesion, their absence in the sputum does not by any means exclude the presence of tuberculosis.

I was very glad that Dr. Wheaton brought out the value of sunlight, for a prominent scientific man has recently made the statement that sunlight produces tuberculosis, and that the ideal way to live would be in a dark room. It will be my privilege to reply to that theory next Saturday morning before the Society for the Study and Prevention of Tuberculosis. The ideal climate to my mind is one where the patient can live outdoors the largest number of days with the greatest amount of comfort, wherever that may be. There are idiosyncrasies in the susceptibility to climatic conditions as well as to medicine. If I am called on to decide the climate for a patient, I examine my patient to see what stage he has reached and whether he has money enough to sustain him away from home for a year; and then I ask him whether he prefers and feels best in cold or warm weather. I select

the climate in accordance with his preferences. The economic factor is most important. A patient who comes from the laboring classes should, as far as possible, be treated and cured in the climate where he contracted the disease. I firmly believe that the home climate of the patient, or a climate in or near the locality where he wishes to live after his restoration to health, is the ideal climate for him. It may take a little longer to cure a patient in his home climate, particularly if not ideal, but I believe that the chances of his remaining cured are better than if we had sent him to a so-called congenial climate entirely different from the one where he wishes to go back to work. If a patient is in an advanced stage, and I know he will not get well, I let him go away or stay at home, just as he likes.

Diagnosis should be begun in the schools. The Calmette or ocular test is excellent in many ways, but it is not free from danger, particularly in scrofulous children. It is necessary to be careful to avoid keratitis and other serious inflammatory troubles. Sometimes a child has been inoculated three or four times. The little ones forget that it has been done, and whether the test was made in the left eye or the right eye; and because of the sensitizing the diagnostic value is much lessened. I believe that we could accomplish a really great work in the early diagnosis of tuberculosis if we would train our school teachers to suspect tuberculosis when a child fails in its studies, looks anemic or complains of pain in the joints, and to refer such a child to the school physician for a careful examination. It is only by systematic examination and re-examination of suspected cases, that we shall find the children who are tuberculous. After a child has been declared to be tuberculous, it should be sent to an open-air school or school sanatorium. We must teach the child to love fresh air. When we begin by diagnosing tuberculosis in childhood and follow up the case so that the child will not develop full tuberculosis—you all know how curable tuberculosis is in childhood—then we shall strike at the root of the problem. Herein, I believe, lies one of the most important parts of our diagnostic work in regard to tuberculosis.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: In regard to the use of tuberculin, I am midway between Dr. Evans and Dr. Knopf. Some years ago, I was using it a little and then I declared that I would never use it again. Then I used it again for a while, and then I declared I would never use it again. I am there just now. I think I shall never use it again. Of course, there are various forms of tuberculin. Dr. Smithies emphasized the point that we should know what we are using when we use tuberculin. Tuberculin is generally prepared by concentrating a glycerin culture of the bacillus of tuberculosis. In some cases the so-called tuberculin is precipitated with alcohol and re-dissolved in water and re-precipitated, etc.; in some cases it is not. More or less of the tubercle bacillus has gone into the solution. It is a powerful mixture, and we now know certainly that a proteid substance injected into the human body or administered intravenously, subcutaneously, intracranially, intra-abdominally or anywhere except in the mouth, may act as a poison. If you give two injections of egg-white at intervals, you poison the subject. By giving tuberculin you render the subject susceptible to every proteid that is in the mixture. In the hypodermic use of tuberculin I think that we should be very careful and should know what it is. I am much interested in the Calmette reaction. I do not think that the time has come when we can accept it positively. There are a few cautions yet to be borne in mind in using it. We now know, what we did not know at first, that its repeated use in the same eye may bring on rather severe inflammation. I instilled tuberculin into the eyes of 108 or 110 supposedly healthy young men in my class. Six reacted. I concluded, after a physical examination and after taking the temperature, that four of those were tuberculous. I was in doubt about one, and in one I could not find evidence of tuberculosis. That led me to believe that as a diagnostic means this reaction has its value. Twenty-one days later I made a second instillation into the same eye in each one of the students. Fifty-nine per cent. of them reacted, some violently. One young man, who was quite enthusiastic in making experiments, made a third instillation in his own eye, and the

inflammation that followed was extremely violent. I did not know but that it was going to be serious. The eye was kept carefully washed out with a saturated solution of boric acid, and it healed. It is dangerous to put the tuberculin too often into the same eye. In order to have a good reaction we must learn the conditions under which we give it. I think it should be applied early. It would be a great godsend if we had an absolutely safe means of early diagnosis. I think that there is one thing about the climate that we do not always realize. I say to my patients: "You are better off in Michigan under good local conditions than in Colorado under unfavorable conditions." You can prove by statistics that the best place for consumptives is in a high latitude, in a low latitude, on the land, and on the sea. The purity of the atmosphere—local conditions—is the important point. It grows on me from year to year that pure air is the best sedative we can give consumptives to allay their coughing, and in general, I think cold, pure air is more sedative than warm air.

DR. C. L. MINOR, Asheville, N. C.: My experience has taught me to believe that the tuberculin test for the presence of tuberculosis is fully justified in skilled hands and in properly selected cases, but that its indiscriminate use by members of the profession not familiar with its administration or action can be fraught with great danger. If the profession were to use it as carelessly as a doctor of whom I have heard, who, suspecting tuberculosis in a trained nurse in his employ, without making any physical examination or taking any history, told her to come to his office next morning for a test dose of tuberculin, the harm that would be done can be easily realized. Used thus, to take the place of a proper physical diagnosis, it certainly could not be recommended. Further, it should not be used simply because of doubt. Repeated examinations and great care in every step are first necessary, but if, after such repeated examinations, you have failed to find evidence of tuberculosis, although the case is very suspicious, then the test with tuberculin is justified and proper. I believe 4 mg. to be a rather dangerously large initial diagnostic dose and that the initial dose should not be over 1 mg. It also seems to me that the distribution by the board of health to the general practitioner of tuberculin for diagnostic purposes is fraught with considerable danger. As to the relative simplicity of the different methods of giving tuberculin, the subcutaneous, the cutaneous and the ophthalmic, while the mastery of the exact doses, etc., of the former, is to the beginner a little more difficult, to any one who has once learned it, the subcutaneous method is just as easy and safe, and more accurate. However valuable a therapeutic measure may be, it must be used with intelligence. Were morphin, for instance, not used in this way, the results would be disastrous. Climate must be used with discretion. But while care will always be essential to these cases, climate, combined with care, will secure results otherwise impossible.

DR. W. A. EVANS, Chicago: My reason for advocating the dosage mentioned is that the findings which result are so definite as to be unmistakable. What we are suffering from at the present time is, I believe, a lack of definiteness of conclusion. I would not say that we should do away with physical diagnosis or valuation of history; but I take exception to the view that those are sufficient in themselves. I do not believe that there is a person here to-day who, in his life work or anything else he has set himself to do, has taken the position that the situation was being met. We all know that thousands of persons are dying because physical diagnosis and valuation of history are not sufficient to make a diagnosis when the disease can be cured. Let us hold on to everything that we have, and then search for everything that we can find. We have heard here that the indiscriminate use of tuberculin in the hands of the unskilful is fraught with danger. I trusted that we might have proof that it was fraught with danger. I have been told that this diagnostic agent should be limited to the hands of the skilful. I have yet to find any sign by which the skilful are to know that tuberculin will do harm. Until they can, I do not see why we should limit it to the hands of the skilful. I think the experiments on animals have demonstrated that it is reasonably safe. I have not yet been able to find any basis for believing that it does harm in any

considerable number of cases. I do know that the valuation of history and sputum is doing harm. The consumptive at the period when there is hope for him, has to be handled by the general practitioner. I would that we could force him to go to men like Knopf who can diagnose consumption when it is curable, or Miner, but I believe that you are all of the opinion that this ideal condition will not prevail in this country. I have seen consumptives by the score going down before death cursing the members of the medical profession because they had not been told they were consumptive until they learned that there was nothing in store for them but death. We have heard that one physical examination at the hands of a man as experienced as Dr. Knopf and as Dr. Miner is not enough. We have heard that the continuous examination will eventually reveal the presence of tubercle bacilli. That is probably true. I remember that tubercle bacilli were found in a case in which they had not been found in thirteen examinations. I have been told of a case in which tubercle bacilli were found on the sixtieth attempt. You all know that when the bacillus is found on examination, the adjudication is made from one examination, and there is danger that a man will fail in his diagnosis by reason of the fact that the other fifty-nine examinations will not be made. A promiscuous use of tuberculin may here and there rarely do harm to some individual. I believe that at the same time the promiscuous use of tuberculin will mean a saving of human lives.

Dr. Vaughan has told us that the tubercle body is a multiple body, a compound, and when we inject it into our patients we poison those patients. The same holds true of morphin and chloroform. The fact is this: Everything which is powerful for good may be made powerful for harm, and the argument based on the fact that tuberculin contains poison is no better against the use of tuberculin than a parallel argument would be against the use of morphin. It does not touch the vital question, and that is: Do we add to the possibility of the discovery of the tubercle bacilli by using tuberculin? The old idea, it seems to me, has been refuted. I believe that the action on the part of the Department of Health of the City of Chicago in distributing tuberculin for the use of general practitioners will mean a saving of the lives of many of its own citizens.

DR. THEODORE B. SACHS, Chicago: The question arises if a timely and proper use of tuberculin and a correct interpretation of the resulting reaction does not require as much application and knowledge as an intelligent study of the personal history of the patient and a thorough physical examination of the chest. As an adjunct to the usual diagnostic methods, when examination and history are inconclusive, the tuberculin test has its field of application in the hands of an experienced practitioner, but always under conditions such that a proper observation of the case is possible. A point of practical importance, not to be overlooked, is the occurrence of tuberculin reaction in so-called latent cases of tuberculosis, a reaction which does not point necessarily to need of sanatorium treatment, but still is instrumental in putting the physician and patient on guard. While the practical value of ophthalmic and cutaneous tuberculin tests is still *sub judice*, the work of Birch-Hirschfeld, Calmette, Pirquet and others opens a way to modifications in the tuberculin test, divesting it of any possible harmful effects and yet preserving its reliability.

DR. J. W. SHANKLAND, St. Louis: I made a report on 142 cases of conjunctival and cutaneous tuberculin reaction before the St. Louis Medical Society last winter. In order to determine whether the reactions were produced by the tuberculous toxins or not, we first used the different diluting fluids and the glycerin bouillon in which no bacilli had been grown, both on the conjunctiva and the skin as controls with negative results. When tuberculin was added to these same diluting fluids, giving some positive results, it was proof enough that the tuberculin was the cause of the reaction. By physical examinations and microscopic work the cases were classified as follows: 1, positively tuberculous; 2, suspected tuberculous; 3, non-tuberculous with other diseases, and 4, clinically normal individuals. The general average of the cutaneous reactions in these four classes of cases shows about 50 per cent.

positive. In this series of cases the conjunctival reaction fell to 25 per cent. positive. The cases in Class 3, of other diseases, gave a general average of 37 per cent. positive reactions in the 700 patients inoculated. The results of the various men working with tuberculin vary so greatly, both in the work with animals and in that with people, that at times their reports are precisely opposite; thus destroying confidence in both the conjunctival and the cutaneous reactions. I think that a great deal of work must yet be done with tuberculin before we can come to a definite conclusion as to its real diagnostic value. It would therefore be infamous to advise an individual giving a positive result to either of these reactions to leave his business and his family to seek a different climate. It is impossible to make the diagnosis without the corroboration of other findings. If tuberculin is a specific, then such advice would be possible without the consideration of other facts. As it now stands, tuberculin may be an aid to diagnosis in adults, and yet there is a great deal to be proved as to just what value as an aid these reactions are in the adult cases. Dr. Engelbach, my associate in this work, has inoculated a large number of perfectly healthy individuals in the St. Louis University; among them, a number of football players and athletes in the pink of condition. He reports positive cutaneous reactions in 50 per cent. and positive conjunctival reaction in 25 per cent. of this series of cases. We have simultaneously inoculated patients on the skin and in the eye, and would get a positive conjunctival reaction in a given case, with a negative cutaneous reaction, while in another case the result would be the reverse. We must account for this variance, and how are we going to do this in a perfectly healthy individual? To prove the relations of these reactions to the pathologic conditions found seems to me as impossible as it is to send a telegram from one city to another with the wires severed midway between the starting point and the finish. We put a drop of tuberculin in the eye, and we see the reaction follow; there the message stops. What is back of that reaction in the way of a lesion we are unable to say because we get positive reactions when no pathologic findings are present, and the degree and the kind of reaction bear no definite relation to the location, extent or activity of the lesion when one is found at autopsy. Every symptomatic message should be traceable to a functional or pathologic base.

DR. H. M. KINCHORN, Saranac Lake: It is our custom at Saranac Lake to begin with a small dose of tuberculin. Of course, we do not give the tuberculin test to any patient until we have used all other tests in making the diagnosis. When we have made a careful examination of the chest and of the sputum, if we think that there is tuberculosis present, we then give the tuberculin test. First of all, we take the temperature every two hours for two or four days. We give the test only if there is no elevation over 99.2. We then give the first test of 0.5 mg. in the evening. We regard a reaction of one whole degree above the highest point of the temperature on the previous days as definite and an elevation of less than a degree as suspicious. We then wait until the temperature has become normal and we either repeat that dose or give a larger dose. I feel that it is wiser to increase the dose from 0.5 to 2 mg., so that within two days or three days we give a second dose of 2 mg. If we get a definite reaction, of course that makes the diagnosis. If we don't get a definite reaction from 2 mg. we increase to 5 mg. after an interval of two or three days, and then to 8 and 10 mg. at intervals of two or three days. It is a very valuable thing in some cases in which the disease is strongly suspected to repeat the dose of 10 mg. I am quite sure that some cases are missed if one does not go to 10 mg. I have used the test for ten years and I have never had any bad results. Of course, the cases in which it was used were incipient cases or they would not have had the test. They were without fever. The only danger I can see in the test is from the reaction. In addition to using tuberculin for test purposes I have used it for treatment, treating as many as twenty patients in private practice at one time. All these patients will some time or another have a reaction, and I have no fear from the tuberculin reaction. Sometimes the reaction may be prolonged for several days or even a week, but I would console the beginners who are using tuberculin by

saying that the temperature will become normal if they will only keep their patient quiet and absolutely at rest. I feel as strongly as Dr. Evans and Dr. Miner do about the great value of the test. I think it is one of the finest things we have in medicine. Of course, it is to be used with great care, and the dose should be put up by some one who has had experience in the metric system when the general practitioner intends to give tuberculin injections. There will then be no mistake in the dosage.

DR. C. C. BROWNING, Los Angeles, Calif.: I endorse what Dr. Evans and Dr. Kinghorn have stated. I think dosage depends somewhat on how we are going to control our patients. In a sanitarium, where I expect to have the patient under my control, I much prefer the small dose. In addition to watching over the temperature I watch over the physical signs. Of course, I use the tuberculin test only when it is necessary to clear up an obscure case. If there have been suspicious symptoms they will be frequently augmented. It is possible that the temperature rise may be brought about by nervousness. At the time I am taking the temperature I am constantly watching until I become quite familiar with those signs. If my patient happens to be one from whom I am not likely to hear again, and it depends on what we do at one time for him, then I think that probably the larger dose is better. I have no fear of the ordinary tuberculin reaction. I have used tuberculin for years, and for the past few years have had from 75 to 100 patients under my care continuously, and any ordinary reaction I think is absolutely without danger. I think one of the great opportunities for preventive medicine is to begin teaching in the schools. We should give the pupils good ventilation. If a tuberculous patient is to be treated in a home success will be attained by making home conditions approach those of a sanitarium. I do not feel that, because it is possible that a person's temperature may be raised by the direct rays of the sun, therefore a climate in which there is a great amount of sunshine may necessarily be detrimental to that person. I do not think that there is any "best" climate for all patients. Each patient should be studied carefully, thoroughly and scientifically before a climate is recommended, just as before the administration of any medicine.

DR. GORDON WILSON, Baltimore: I do not think that enough stress has been laid on the dangers of the ophthalmic reaction. The European papers have mentioned a considerable number of cases of ulcer of the cornea and recurrent conjunctivitis following its use. My experience in its use has been only in the case of persons suspected of having the disease. I have had nearly one hundred cases, and so far the reactions have not been very severe. The most severe results that I have had have been edema about the eyes, and conjunctivitis, lasting about a week. In Baltimore there has been one bad case of ulcer of the cornea in a child who had bone tuberculosis, to whom a single dose was given according to Calmette. It was in a hospital for tuberculous children, where the chances for secondary infection were slight, and as soon as the reaction took place the usual treatment for conjunctivitis was instituted. I heard night before last of a doctor in Denver, Colo., who tried it on himself, and he had a severe conjunctivitis. Since then he has noticed that after reading late at night the conjunctiva of that eye is markedly injected on the following morning. I think that we are dealing with a dangerous agent, dangerous because used on a very important organ of the body. The danger of secondary infection is present in both the ophthalmic and the skin test, but there is less danger from secondary infection when injected in the skin.

DR. C. H. JOHNSTON, Grand Rapids, Mich.: What constitutes a reaction? Dr. Kinghorn says that a reaction in his mind simply consists of an elevation of temperature of one degree. This is not the belief of all of Dr. Kinghorn's colleagues. Two of them have told me repeatedly that, in addition to the elevation of temperature, there must be some other indication, such as backache, or headache, or muscular pains. In Dr. Kinghorn's opinion, is a simple rise of temperature alone, without any other indications, enough for us to base a diagnosis of a reaction on? I hope to-day to get some definite information on the relative importance or re-

liability of the ocular as compared with the hypodermic test, because in the last few months, in ten different cases, I got no reaction with the eye test, but got a reaction with the hypodermic test. One of my friends said to me that it was probably due to the material that the test was made with, but the material in these cases was the same as was followed by positive reaction in other cases.

DR. H. M. KINGHORN, Saranac Lake: The temperature is the important point in a reaction. When you have a temperature of one degree over the highest previous temperature, and that one degree of temperature has been rising slowly, any one who has had any experience with the tuberculin reaction will understand that this is characteristic. The temperature rises slowly, and then drops. Even without other symptoms I regard it as very definite. You only occasionally meet patients who will have a temperature of 101 without any other constitutional symptoms except a rapid pulse. That occasionally occurs. Usually, however, with that rise in temperature you will have a definite feeling of malaise, which accompanies the tuberculin reaction, also headache, loss of appetite, pains and aches all over, and very frequently a large lump at the seat of the injection. All this constitutes a tuberculous reaction. However, where the temperature rises slowly I regard it as a definite reaction without those symptoms.

DR. S. H. GILLILAND, Marietta, Pa.: I have prepared much of the tuberculin for use. It has been said that tubercle bacilli may be found in suspension. If the tuberculin is prepared according to the original method of Koch it is impossible to have tubercle bacilli in suspension. As Dr. Vaughan said, after they have grown on the glycerin beef broth the tubercle bacilli are then removed from the beef broth by triple filtration. You must see that the filter is efficient and that the organisms do not go through. The filters I use are tested in this way: A virulent culture of tubercle bacilli suspended in salt solution or media is filtered and the filtrate injected into guinea-pigs, thus determining the efficiency of my filters. I can then feel positive that the filtrate is free from tubercle bacilli. Dr. Smithies brought out the point that for human beings afflicted with tuberculosis the tuberculin should be made from the tubercle bacilli of human type. I am at a loss to understand that statement, as I have made tuberculin from tubercle bacilli of bovine type, and have obtained equally reliable results. It is an accepted fact that a number of cases of tuberculosis are of direct bovine origin. I have supplied material for about 12,000 tests. That excludes the subcutaneous test, but of the other tests the majority were ophthalmic. I have heard of no bad or unsatisfactory results. I have heard of all the work that has been done in this country through the use of my tuberculin, bad and good, and in a series of cases in which a man made three tests in one person the results were almost absolutely uniform. That has not been the case in certain other countries. The eye test has given a positive reaction and the cutaneous test has failed, and vice versa. In these cases the tuberculin was all prepared from the same strain of tubercle bacilli. I believe that the eye test is one with which a certain degree of danger is associated, and I do not believe that the physician is fully justified in using it freely to diagnose any condition in the body; that is, provided we have another test, and I feel that we have other tests that are equally reliable, at any rate in children. Whether they are so in adults remains to be seen.

DR. M. P. RAVENEL, Madison, Wisconsin: I agree with what Dr. Kinghorn has said most thoroughly and believe that tuberculin should be used in every doubtful case. I am sorry that Dr. Knopf has apparently approved the diagnosis by bacilli in the sputum. I think that is one of the worst doctrines that has ever been taught in regard to diagnosis, and am thoroughly convinced that it is responsible for the death of many people. Bacilli can appear in the sputum only after softening and breaking down of the tubercle has taken place. In the great majority of cases this means secondary infection, and a diagnosis based on such findings can not be considered an early one. I believe that the tuberculin test in doubtful cases will enable us to make a much earlier diagnosis than this, and in this way many lives will be saved. I can not entirely agree with Dr. Evans as to the wisdom of putting it

in the hands of general practitioners, although I have no doubt that every educated physician can learn its proper use. At the present time it is best used by specialists. I can not agree that this is saying anything against the practitioner, any more than it is to say that the general practitioner should not attempt an oöphorectomy. I am sure that the general physician does not regard it as an attack on him when one advises that cases of surgery go to a surgeon, and at the present time it is the same thing with regard to the tuberculin test. In regard to what constitutes a reaction, if temperature alone is taken as an index, mistakes may be made. It is, of course, a part of the symptom-complex, and a most important part, but should be taken in connection with all other symptoms, subjective and objective. The diagnosis should not be made on any one particular symptom. The point made by Dr. Sachs is well taken. I have recently, in some experiments with tuberculin in the shape of ointment, observed a typical reaction in two men who were in the best of health, one of whom more than a year ago had a cutaneous tubercle. Neither of these men was a subject for sanitarium treatment. While these are special cases, there are many others who will give the tuberculin reaction but who are not fit subjects for sanitarium treatment.

Theoretically, the proposition was correctly stated by Dr. Knopf, that the climate which enables the patient to spend the greatest amount of time in the open air with least expense of vital force is the best one for the treatment of tuberculosis. Practically, this does not seem to hold true. I do not know of any place in any country where better results are obtained than at Saranac Lake, and yet it can not be called an ideal climate according to the standards laid down. I believe that there are certain patients who do better in a selected climate, but that most patients should be treated as near their homes as possible. Sending people hundreds of miles away from home without friends and without money is one of the most cruel things that can be done. More important than climate is the personality of the attending physician. The man who has his patients under strict discipline and who is able to inspire them with hope and courage is the man who gets the best results regardless of what the climate is.

DR. CHARLES L. MINOR, Asheville, N. C.: I admit that climate without care is almost useless, since the results obtained will be only temporary; but I also maintain that except in unusually favorable cases the best results are not likely to be obtained with care but without climate, and any one, by the use of a little thought, must realize, unless he is so prejudiced as to have his mind closed to conviction, that the combination of these two good things will give the best results.

DR. S. A. KNOFF, New York: About ten years ago, in my first book, I stated that to find the bacilli was absolute proof of the presence of tuberculosis and that not finding them did not exclude the possibility of a pulmonary tuberculosis. I stated distinctly this morning that, as a rule, we find the bacilli only when disintegration has taken place, but this should not be an excuse for not looking for them. I also have been misunderstood in regard to my attitude as to tuberculin. We have now some tuberculin test methods which are relatively free from danger, such as the skin method, the use of which may be justified in rare instances. After the patient's history has been taken and a careful physical diagnosis has been made, he should be informed of the consequences of the tuberculin test. His permission, and that of his family physician, and the approval of the practitioner's own conscience, should be obtained before making the test. How many of you would be willing to have 4 mg. of tuberculin injected into you without a previous physical examination justifying it as a last resort? I still plead with you not to neglect what our fathers have taught us, a careful taking down of the history, and a still more careful physical diagnosis.

DR. FRANK SMITHIES, Ann Arbor, Mich.: In the routine work of teaching physical diagnosis I have had ample opportunity of observing the effects of both the subcutaneous and the conjunctival reactions to tuberculin. I agree heartily with Dr. Knopf that no form of tuberculin test can take the place of accurate physical examination with the patient stripped.

But there are many patients about whom, even after careful examination, one is in doubt. In these some variety of tuberculin test is indicated. I have faith in the ability of the general practitioner to make a reliable test with tuberculin subcutaneously administered, if the practitioner will only take the time to do so. In general practice the conditions are entirely different from those in hospitals or sanatoria, and as a consequence the details connected with the proper administration of tuberculin subcutaneously are more difficult to see to, and as a result the method does not always yield dependable information. I had these facts in mind when I took up the study of the conjunctival reaction, and my endeavor was to secure figures for a dependable and at the same time a conveniently carried out test. I am still inclined to the belief that where men have presented figures from sufficiently large series of cases the results have been favorable to the use of the conjunctival test. Of course, it is quite useless to compare the majority of the German reports with those from the French, inasmuch as in Germany there seems to be a prejudice against the test, largely on account of Calmette's name being associated with it. Then again, the tests have been made in Germany with a great variety of tuberculin preparations, many of which are now recognized as being unfitted for the work. I admit that here and there serious consequences have followed the conjunctival test. I called attention to four violent reactions in the work of Dr. Walker and myself this morning. I know of no case, however, in which such results have followed when the eyes were negative before the test was administered and were looked after following the instillation of the tuberculin. Regarding the different varieties of preparation used, I believe that when possible we should use tuberculin from human bacillus growths when testing human beings. In my opinion, the work of Detre with the cutaneous reaction seems to prove that more distinct manifestations are secured in tuberculous subjects when tuberculin from human bacillus growths are used, in preference to bovine bacillus growth tuberculin. I believe that many of the commercial tuberculin "discs" are not dependable.

THE DIAGNOSTIC VALUE OF THE CUTANEOUS AND CONJUNCTIVAL TUBERCULIN REACTIONS *

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AND

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In endeavoring to arrive at definite conclusions as to the diagnostic value of the recent local tuberculin reactions, we have made a study of the literature on this subject to May 1, 1908, to which we have added the results of personal observations on 1,242 cases. The review of the literature includes the opinions of nine authors on their results with animal experiments; the reports of 41 authors on 5,032 cases of all ages subjected to these reactions, 3,477 to the conjunctival reaction and 1,546 to the cutaneous reaction. Our own investigations were made on adults only at the St. Louis City Hospital and the St. Louis University Medical School. They consist of 499 cutaneous reactions and 743 conjunctival reactions on 125 positive tuberculous cases, 190 suspect tuberculous cases, 700 other diseases not tuberculous clinically and 90 clinically normal individuals. The sum total of all cases considered is 6,305.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

* Owing to lack of space, the article is here abbreviated by the omission of the portions relating to technic and histology as well as some of the case reports and tables. The complete article appears in the Transactions of the Section and in the authors' reprints.

ANIMAL EXPERIMENTS

Ignieres¹⁵ and Valle¹⁶ produced positive conjunctival and cutaneous reactions in tuberculous cattle and horses, and constantly obtained negative reactions in these normal animals. Klempner¹⁷ observed only one negative cutaneous and conjunctival reaction in a series of tuberculous cattle. Positive reactions have been demonstrated by Valle¹⁶ in tuberculous dogs and rabbits, and by Klempner in guinea-pigs and dogs. Wildbolz's¹⁸ autopsy findings in rabbits confirmed the value of these reactions. He obtained negative results with both these reactions in twenty normal rabbits which, with one exception, gave positive reactions to both tests six weeks after they had been inoculated in the bladder with tubercle bacilli.

Necker and Paschke¹⁹ report that the inoculation of animals has confirmed the value of the cutaneous reaction in tuberculosis of the genitourinary tract. In forty-two suspected cases of genitourinary tuberculosis in the human they had only one positive cutaneous reaction which was not substantiated by animal inoculation of urine. Notwithstanding the above favorable reports, a majority of the investigators have reported unsatisfactory results with these experiments. Arloing²⁰ observed in nineteen tuberculous animals (cats, goats, dogs, rabbits and guinea-pigs) a positive cutaneous reaction which could not be considered specific, however, because the identical reaction occurred in nine normal control animals.

Joannowicz and Kapsammer²¹ obtained negative results with both reactions in a large series of tuberculous guinea-pigs. Levi and Klopstock²² did not obtain a positive conjunctival reaction in the series of tuberculous guinea-pigs and dogs. Vaccination of tuberculous guinea-pigs with from a 1 per cent. to a pure solution of tuberculin constantly gave negative results. One animal gave a positive conjunctival reaction and on postmortem no tuberculous lesion was found. One which had given a positive conjunctival reaction to a 1 per cent. solution was free of tuberculous lesions at autopsy. Wolff²³ did not produce positive reactions in tuberculous guinea-pigs or rabbits, although these animals gave positive reactions to the subcutaneous test. From these investigations one must infer that the results of this research have been so variable as not to aid the establishment of the specificity of these reactions.

POSITIVE TUBERCULOSIS

Cutaneous Reaction.—In 500 cases of positive tuberculosis, in patients between the ages of 5 and 14 years, von Pirquet reports 88 per cent. positive and 12 per cent. negative reactions. In a series of 143 cases (Table 1), of patients of all ages compiled of seven different authors, 70 per cent. gave positive reactions and 30 per cent. negative. In our own investigations of 55 cases (Table 10) 31 or 56 per cent. of the patients gave positive reactions, and 24 or 44 per cent. negative. A majority of our patients were in the third stage.

Conjunctival Reaction.—Of 1,572 cases by 30 different authors (Table 5) selected from the literature, 86 per cent. of the patients gave positive and 14 per cent. negative reactions. Schroeder and Kaufman²⁴ (Table 9) from a collection of 971 cases report that the patients in 88.5 per cent. gave positive and in 11.5 per cent. negative reactions. Our own results (Table 10) in the positive tuberculous cases with the conjunctival reaction was that of 70 patients 52 or 74 per cent. were positive and 18 or 26 per cent. were negative. The majority of these patients also were in the third stage. Wolff²³ found 30 per cent. of the patients in the first and second stages of tuberculosis reacted negatively to the conjunctival test and 37 per cent. negatively to the cutaneous reaction. Heinemann reports six cases of patients in the first and second stages of tuberculosis and Levi²² four cases of patients not in the advanced or cachectic stages of tuberculosis (one of the kidney, one of the prostate, two of the knee-joint), which gave negative reactions. Webster and Kilpatrick²⁵ report cases of patients with beginning tuberculosis which gave negative conjunctival reactions. Mentoux²⁶ obtained negative conjunctival reactions in ten positively tuberculous children in the first stages of disease, MacLennan²⁷ obtained negative reaction in early tuberculosis (patients with hip disease in good condition and in two patients with phthisis which reacted positively to 10 mg. of tuberculin (O. T.) subcutaneously). Kleinberger²⁸ reports 7 negative and 2 doubtful reactions of 17 patients with not advanced tuberculosis.

SUSPECTED TUBERCULOSIS

Cutaneous Reaction.—in a series of 23 cases of children von Pirquet reports 5 positive and 18 negative reactions. The patients in the 5 positive cases proved to be tuberculous and 15 of the patients in the negative cases were found to be free from tuberculosis at necropsy. In 195 cases of five authors (Table 2) 55 per cent. of the patients reacted positively, 44.5 per cent. negatively and in 0.5 per cent. the results were doubtful. In our own results (Table 11) of 55 patients with suspected tuberculosis other than pulmonary (arthritis, adenitis, peritonitis, meningitis, etc.) 30 or 55 per cent. reacted positively and 23 or 45 per cent. negatively. In 42 patients with clinical symptoms of pulmonary tuberculosis (Table 12) 28 or 67 per cent. reacted positively and 33 per cent. negatively.

Cutaneous Reaction.—In a series of 23 cases of children (Table 6) 48 per cent. of the patients reacted positively, 50 per cent. negatively and in 2 per cent. the reaction was doubtful. Schroeder and Kaufman²⁴ (Table 9) reported practically the same percentage, 51.4 per cent. positive and 48.6 per cent. negative. For our own results (Table 11) in 40 cases other than pulmonary 21 or 52 per cent. of the patients resulted positively and 19 or 48 per cent. negatively. Of 52 patients with the clinical symptoms of pulmonary tuberculosis 15 or 28 per cent. reacted positively and 38 or 72 per cent. negatively (Table 12).

OTHER DISEASES CLINICALLY NON-TUBERCULOUS

Cutaneous Reaction.—Of 252 cases in the literature (Table 3) 15 per cent. of the patients reacted positively

15. Semaine méd., 1907, p. 585.
16. Acad. d. sc., May 27, June 17, 1907; Semaine méd., 1907, pp. 85, 399.
17. Deutsch. med. Wchnschr., 1908, No. 4.
18. Berl. klin. Wchnschr., March 16, 1907.
19. Wien. klin. Wchnschr., March 5, 1908.
20. Soc. de biol., June 22, 1907.
21. Berl. klin. Wchnschr., 1907, No. 45.
22. Berl. klin. Wchnschr., Feb. 3, 1908. Deutsch. klin. Wchnschr., No. 3, 1908.
23. Berl. klin. Wchnschr., Feb. 10, 1908.

24. München. med. Wchnschr., Jan. 14, 1908.
25. Brit. Med. Jour., Dec. 7, 1907.
26. French Congress for Internal Medicine, Paris, München. med. Wchnschr., Jan. 14, 1908.
27. Brit. Med. Jour., Dec. 7, 1907.
28. München. med. Wchnschr., Jan. 14, 1908.

and 85 per cent. negatively. In our own results (Table 14) in 268 cases 149 or 56 per cent. of the patients reacted positively and 119 or 44 per cent. negatively.

Conjunctival Reaction.—From a total of 932 cases collected (Table 8) the reactions of the patients in 17 per cent. were positive and in 83 per cent. negative. Schroeder and Kaufman²⁴ (Table 9), on a basis of 627 cases, found the patients' reactions in 12.7 per cent. positive and in 87.3 per cent. negative. Our own results (Table 13), with 417 patients, gave 102 or 24 per cent. positive and 315 or 76 per cent. negative. Cohn⁹ produced positive reactions in 38 per cent. of the cases of typhoid. Plehn²⁰ obtained positive reactions in 2 of 5 patients with typhoid, 2 of 5 patients with scarlet fever, 6 of 12 patients with articular rheumatism, 3 of 6 patients with acute bronchitis, and in 3 patients with enteritis. In none of these patients was there the slightest evidence of tuberculosis. In one case, a pregnancy complicated with pleurisy, a positive reaction occurred from a 1 per cent. solution, and in the other eye two weeks later a negative reaction occurred from a 2 per cent. solution. In a case of articular rheumatism the patient gave a positive reaction during the activity of the symptoms. The symptoms of rheumatism promptly subsided on the administration of salicylates, but two weeks later returned and, simultaneously, without installation, a marked conjunctival reaction recurred in the eye previously instilled. Reuschel²⁹ reports one case of a patient with leukemia (free from tuberculous lesions at autopsy), which gave a positive reaction. Blum³¹ obtained 16 per cent. of positive reactions in non-tuberculous diseases. Eisen³² observed positive reactions in 31 per cent. of various non-tuberculous infections. Serafini found that the ocular reaction is not conclusive in tuberculosis of the bone. The reaction was positive in certain gonorrheal, senile and other non-tuberculous articular affections.

CLINICALLY NORMAL INDIVIDUALS

Cutaneous Reaction.—Of 181 cases selected from the literature (Table 4) 91 or 50.2 per cent. of the patients gave positive and 49.8 per cent. gave negative reactions. The patients were of all ages. Burnet¹³ reports positive cutaneous reactions in non-tuberculous people. Kleinberger obtained positive reactions in 16.6 per cent. of normal individuals. Stadelmann³³ obtained positive reactions in 50 per cent. of adults. Warfield³⁴ reports 7 positive reactions in apparently normal individuals (1 in a 7-months-old baby and 6 in adults). von Pirquet¹ has found that in individuals from 10 to 14 years of age 55 per cent. and in adults 90 per cent. reacted positively. Freer obtained 35 per cent. of positive reactions in patients between the ages of 10 and 15 and Mainini³⁵ obtained positive cutaneous reactions six times more frequently than conjunctival reactions.

Conjunctival Reaction.—Of 351 cases selected from the literature (Table 8) 11 per cent. gave positive reactions and 88 per cent. negative and 1 per cent. doubtful. Smithies and Walker³⁶ obtained negative reactions

in 70 apparently normal individuals. Webster and Kilpatrick²⁵ observed two positive reactions in four normal individuals. Mentoux²⁰ produced positive reactions in 16 children in only 3 of whom was there a slight suspicion of tuberculosis clinically. Stadelmann³³ obtained positive reaction in 16 per cent. of normal individuals. Baldwin⁸ obtained 16 positive reactions in 57 normal individuals or a percentage of 28.

Our own results of clinically normal individuals were obtained from experiments on students of the St. Louis University. These students were apparently healthy and many of them were active athletes, such as football men. Of a total number of 90 patients (Table 14) subjected to these reactions 79 were given the cutaneous and 70 the conjunctival, the entire number not taking both reactions. Of 79 cutaneous reactions 41 or 51 per cent. were positive, 18 negative and 20 doubtful, or 49 per cent. negative or doubtful. In 70 of these the conjunctival reaction in 18 or 25.5 per cent. was positive, in 46 negative and in 6 doubtful, or 74.5 per cent., was negative or doubtful. In 63 of these students who volunteered to take both reactions at the same time, the following remarkable results were obtained: In 43 per cent. both reactions were negative or doubtful; in 19 per cent. both reactions were positive; in 33.3 per cent. the cutaneous was positive and conjunctival was negative; in 4 per cent. the cutaneous was negative and the conjunctival was positive; 57 per cent. reacted positively to either one or both; 52 per cent. gave positive cutaneous, and 23 per cent. positive conjunctival reaction.

Of the students who gave positive reactions six gave histories of either having tuberculosis in the family or of exposure to tuberculosis. In over twenty who were examined no clinical evidence of tuberculosis could be demonstrated. Two of the students who gave positive conjunctival reactions had chronic conjunctivitis. In three of the students conjunctival reactions were produced which required treatment. In one case a marked phlyctenular conjunctivitis, and in another edema of the eye-lid with a severe conjunctivitis occurred.

SUMMARY

We must agree with Smithies and Walker³⁶ that the failure of definite conclusions with regard to these reactions in the above cases is to a certain extent due to poor technic, difference in the tuberculin preparation, absence of more positive control than the clinical findings, indefinite standard of reactions and the presence of unknown conditions which modify or prevent these reactions. Whether or not all of the above difficulties will ever be satisfactorily overcome, from the present status of the accumulated report on these reactions in adults, we deduce the following marked inconstancy with regard to their value as diagnostic agents:

SUMMARY OF ALL CASES CONSIDERED

CUTANEOUS REACTIONS		No. Cases.	Per c't. Pos.	Per c't. Neg.
I. Positive Tuberculosis				
Seven authors (Table 1).....		143	70	30
Engelbach and Shankland (Table 10) ..		55	56	44
II. Suspected Tuberculosis				
(Table 11).....		195	55	45
III. Old		190	61	39
Five authors (Table 3).....		232	15	85
Engelbach and Shankland (Table 13) ..		268	56	44
IV. Clinically Normal				
Four authors (Table 4).....		181	50	50
Kleinberger.....			17	83
Freer (10 to 15 years).....			35	65
Stadelmann.....			50	50
Engelbach and Shankland (Table 13) ..		517	24	76
Pirquet (10 to 14 years).....			55	45
Pirquet (Adults).....			90	10

29. Deutsch. med. Wchnschr., Feb. 20, 1908.

30. München. med. Wchnschr., Feb. 25, 1908. Reuschel quotes a case of leukemia reported by Escherich²⁷ in which there was a marked reaction to an injection of 4 mg. tuberculin (O. T.).

31. München. med. Wchnschr., Jan. 14, 1908.

32. Beitr. z. Klin. d. Tuberk., viii, No. 4.

33. München. med. Wchnschr., Jan. 14, 1908.

34. THE JOURNAL A. M. A., Feb. 29, 1908, 1, 687; Interstate Med. Jour., March, 1908.

35. München. med. Wchnschr., Dec. 17, 1907.

36. THE JOURNAL A. M. A., Jan. 25, 1908, 1, 259.

CONJUNCTIVAL REACTIONS

	No. Cases.	Per c't. Pos.	Per c't. Neg.
I. Positive Tuberculosis.			
Thirty authors (Table 5).....	1572	86	14
Schroeder and Kaufman (Table 9)....	971	85.5	11.5
Engelbach and Shankland (Table 10).. <td>70</td> <td>74</td> <td>26</td>	70	74	26
II. Suspected Tuberculosis.			
Twenty-two authors (Table 6).....	642	48	52
Schroeder and Kaufman (Table 9)....	284	51	49
Engelbach and Shankland (Tables 11-12)	190	40	60
III. Other Diseases.			
Nineteen authors (Table 7).....	932	17	83
Schroeder and Kaufman (Table 9)....	627	13	87
Engelbach and Shankland (Table 13).. <td>517</td> <td>24</td> <td>76</td>	517	24	76
IV. Clinically Normal.			
Eight authors (Table 8).....	351	11	89
Stadelmann	...	16	84
Engelbach and Shankland (Table 14).. <td>79</td> <td>25.5</td> <td>74.5</td>	79	25.5	74.5
Baldwin	70	28	72

In positive tuberculosis the negative cutaneous reactions have varied from 30 per cent. to 44 per cent., and the negative conjunctival reactions from 11.5 per cent. to 26 per cent. It has been conceded from the first that patients with advanced tuberculosis give negative reactions. The later reports, however, of Wolff, Levi, MacLennan, Kilpatrick, Klemperer and others prove that patients in the first and second stages of tuberculosis, in good condition, also frequently give both cutaneous and conjunctival negative reactions. Negative reactions in beginning tuberculosis have been reported in as high as 30 per cent. to 37 per cent. of the cases by Wolff.

In suspected tuberculosis there is a constant finding in the hands of different men of about 50 per cent. negative and 50 per cent. positive reactions. The positive reactions in these cases have varied from 40 per cent. to 48 per cent. with the conjunctival reaction, and 55 per cent. to 61 per cent. with the cutaneous reaction.

In other diseases not considered tuberculous clinically the percentage of positive reactions has varied from 15 per cent. to 56 per cent. with the cutaneous and from 13 per cent. to 24 per cent. with the conjunctival.

In clinically normal individuals there has been a wide range of difference with the positive reactions. These have ranged from 17 per cent. to 90 per cent. with the cutaneous reaction, and from 11 per cent. to 28 per cent. with the conjunctival reaction.

In comparing the table of cases selected from the literature one is struck with the same amount, practically, of positive reactions which occur in non-tuberculous diseases and clinically normal individuals. In comparing the suspected with the positive tuberculous cases compiled, the difference is not enough to warrant positive conclusions.

	Cutaneous.		Conjunctival.	
	P.C. Pos.	P.C. Neg.	P.C. Pos.	P.C. Neg.
Positive Tuberculosis	56	43	74	26
Suspected Tuberculosis (not pulmonary) ..	55	45	52.5	47.
Suspected Tuberculosis (pulmonary).....	67	33	28	72
Other Diseases (non-tuberculous clinically) ..	56.5	43.5	24	76
Clinically normal individuals.....	51	49	25.5	74.5

In our own work, which is shown in the above table, the cutaneous reaction in the five conditions (positive tuberculosis, 56 per cent.; suspected tuberculosis, not pulmonary, 55 per cent.; suspected pulmonary tuberculosis, 67 per cent.; other diseases, 56 per cent.; clinically normal individuals, 51 per cent.) was practically the same percentage. Our cases of positive conjunctival reaction in suspected pulmonary tuberculosis (28 per cent.), other diseases non-tuberculous clinically (24 per cent.) and clinically normal individuals (25.5 per cent.) also occurred practically in the same relative number of cases.

CLINICALLY NORMAL INDIVIDUALS SUBJECTED TO BOTH CUTANEOUS AND CONJUNCTIVAL REACTIONS

	No.	Per Cent.
Individuals	63	..
Positive reactions	36	57
Positive cutaneous reactions.....	33	52
Positive conjunctival reactions.....	15	23
Positive cutaneous, negative or doubtful conjunctival.	21	33
Positive conjunctival, negative or doubtful cutaneous	3	4

Furthermore, a perusal of the above table will demonstrate that these reactions are very variable in normal individuals, i.e., one reaction will be present in the absence of the other one without any definite relation or apparent cause for this variation. We have also observed this variance in known tuberculous cases and in other diseases not considered tuberculosis clinically.

LOCAL LESIONS OF THE EYE

It has already been established that a number of diseases of the eye, tuberculous and non-tuberculous, will in themselves give positive reactions and absolutely interdict the use of the conjunctival reactions. These conditions of the eye necessarily restrict the use of this reaction in a high percentage of cases. The lesions of the eye may be so slight as to be entirely overlooked by those not especially skilled in the diagnosis of eye diseases. It is probable that in two of our normal cases in which the patients gave positive eye reactions, that this reaction was due entirely to a slight chronic conjunctivitis which was not observed previous to the instillation. The above facts probably account for many of the positive reactions which are credited to non-tuberculous diseases.

THE SPECIFICITY OF OTHER TOXINS

In attempting to determine the specificity of tuberculin reactions it is necessary to consider the specific reactions of other toxins applied in this manner, especially those reactions produced or present in other diseases with tuberculin and the reactions produced in tuberculosis by other toxins.

Our own observations with the use of typhoid toxins in known tuberculous cases and other diseases (Table 15) are as follows: We instilled 78 patients with this toxin. Of 48 positive tuberculous patients 8 reacted positively in the first 36 hours. Only 2 of these reactions remained positive after the first 36 hours. None of these patients gave a history of typhoid. Of the 29 patients with other diseases not tuberculous, 1 reacted markedly and 2 gave mild reactions after 24 hours. None of these three patients had had typhoid. Among these cases, however, were three typhoid patients, of whom one gave a negative, and 2 gave slight reactions after 36 hours. We used in this series of typhoid toxin instillation 1 per cent. and 2 per cent. toxin furnished us by the Alexander Laboratory. This laboratory did not recommend the toxin on account of having some difficulty in providing a reliable one which actually contained typhoid toxin. The difficulty has been encountered by Orsvag and others who claim it is impossible to obtain typhoid toxin for this use on account of the toxins of typhoid being endotoxins.

We are led to conclude from the above that toxin reactions in general have not proved specific for the following reasons: 1. Tuberculin gives positive reactions in cases of typhoid fever; 2, typhoid toxin reactions have been demonstrated positive in tuberculosis; 3, the different toxins, typhoid, paratyphoid, colon and tuberculin have given positive reactions in the same case.

ACTIVITY OF THE LESION

Believing that both of these reactions are specific ones for tuberculosis, Wolff-Eisner, Mainini,⁵⁵ Stadelmann⁵⁶ and others maintain that they also indicate the activity and the extent of the lesion. They believe that a positive cutaneous reaction with a negative conjunctival reaction on the first instillation with a positive conjunctival reaction on the second instillation indicates a latent tubercular lesion. A positive conjunctival reaction at the first instillation is indicative of an active tuberculous lesion. Wolff-Eisner and Teichmann⁵⁷ draw definite conclusions from the onset, intensity and the duration of the cutaneous reaction to the activity of the lesion and the prognosis of the case. They have described the following three types of the cutaneous reaction:

Type 1.—The reaction begins 4 to 6 hours after vaccination, reaches its greatest intensity in 20 to 24 hours, as an elevated papule, 10 to 20 mm. in diameter, continuing thus throughout the second day, and gradually disappearing during the third and fourth day to a slight pigmented area for the course of 3 or 4 weeks. There are two varieties of this type, the "marked" and the "moderate." This type is taken to indicate incipient tuberculosis, and first and second stage of tuberculosis, of non-progressive type with a favorable prognosis.

Type 2.—This is a slight reaction characterized by rapid course of mild intensity. It begins about the sixth hour, rapidly reaches its acme, sometimes in 10 hours, when it is from 4 to 10 mm. in diameter, and rapidly disappears not later than the second day without pigmentation. It is said to occur in the third stage of tuberculosis, and in the first and second stages of unfavorable cases having a bad prognosis.

Type 3.—This is a late prolonged reaction. It begins as the other types, reaches its greatest intensity 8 to 10 mm. in diameter at the end of the second day, and persists unchanged for at least a week. It is taken to indicate latent tuberculosis.

The conjunctival reaction they say occurs only in Types 1 and 2, in varying degrees of intensity. They conclude that the cutaneous reactions show marked differences in intensity in the various forms of tuberculosis, depending on the lysis of the bacilli-débris, and the effect on the body of the toxins set free.

In contending against the value of the diagnosis of the activity of the lesion, as claimed above, we wish to join those investigators who disagree with these authors for the following reasons: 1. Animal experimentations have not confirmed their findings; 2. positive tuberculosis of the first and second stages have given both the conjunctival and cutaneous reactions in an inconstant manner, a negative cutaneous reaction, or negative cutaneous reaction with a positive conjunctival reaction; 3. the clinical course of cases giving these reactions has not borne out their predictions; 4. not enough absolute postmortem control has been observed to substantiate their theory.

Baginsky⁵⁸ reports negative cutaneous reactions in a child in good general condition who reacted positively to 1/5 mg. tuberculin (O. T.) subcutaneously. Wolff,⁵⁵ Heinemann,⁵⁹ Levi,⁶⁰ MacLennan²⁷ and others have shown that negative reactions occur in the first and second stages of active, but not

eachectic, tuberculosis. Webster and Kilpatrick²⁵ have demonstrated that the conjunctival reaction occurred in clinically quiescent and non-quiescent tuberculosis. Mentoux²⁶ has shown that negative conjunctival reactions occur in beginning active tuberculosis, and that positive reactions were present in non-tuberculous children.

The clinical course on positive reactions has not borne out the prognostic value of the combined reactions as demonstrated by Heinemann,⁵⁹ who reports one case of tuberculous peritonitis which gave a negative reaction with a final recovery. He also reports a case of bilateral apical lesion which was treated for many months after negative reactions, and which gave later a positive reaction. Engel and Bauer⁶⁰ found 6 cases which gave positive cutaneous reactions, five of the patients were certainly free from tuberculosis, as proved in one case by postmortem, and in four cases by negative subcutaneous reaction.

Our own observations have demonstrated a marked variability of the occurrence and intensity of these reactions which we have not been able to explain upon the activity or extent of the lesion. The relationship of these reactions either in combination or the degree of intensity of the single reaction are so inconstant that we are inclined to believe with Reuschel³⁰ that the reactions demonstrate at most the presence of anti-tuberculous bodies and not tuberculosis. These antibodies depend more on the resistance of the body for their productions than the extent or activity of the infection. The variability of these reactions on this basis is consequently more easily explained. It is yet to be determined, however, whether the sensibility, demonstrated by these methods, is due to antibodies or to albuminous substances in the serum.

PROGNOSTIC VALUE

The prognostic as well as the diagnostic value of these reactions have been affirmed by the majority of the investigators as more or less certain. Some have even claimed that a negative reaction in known tuberculosis indicates a very unfavorable prognosis, death occurring in the majority of these cases within ten days. The same contention would apply to these tests as has been given above, i. e., the questionable specificity of these reactions and the inconstant relationship of the activity and extent of the lesions to the intensity of the reaction. The presence of negative reactions in non-progressive tuberculosis of the first and second stage, as demonstrated by Wolff, Heinemann, Levi, Phlen and Mentoux, and the presence of a positive conjunctival reaction with a negative cutaneous reaction in clinically normal individuals, argue against this claim for these reactions. The clin-

DURATION OF LIFE AFTER REACTIONS IN POSITIVE TUBERCULOSIS

Days from reaction to death.	Reactions.	Positive (26)	Negative (26)
1 to 10	pos. 7 neg. 11	b, a, b, a, b, b, a	b, a, b, d, a, b
10 to 20	pos. 5 neg. 6	b, b, b, a, a	b, a, a, a
20 to 30	pos. 6 neg. 3	b, b, b, b, b, c	b, b, a, a, d, e
40 to 50	pos. 3 neg. 2	b, b, a	c (112 days)
After 50	pos. 5 neg. 4	a (120 days) c (87 days) c (128 days) a, d, e	b (69 days) d (59 days) d (83 days) c (71 days)
Total	52	c (68 days)	

(a, cutaneous reaction; b, conjunctival reaction; c, both reactions positive; d, both reactions negative; e, cutaneous reaction positive, and conjunctival negative.)

57. Berl. med. Wchnschr., Jan. 13, 1908.

58. Berl. med. Wchnschr., June 3, 1907.

59. München. med. Wchnschr., March 17, 1908.

60. Berl. klin. Wchnschr., No. 37, 1907.

ical course and postmortem findings of cases subjected to these reactions have not borne out this significance of these reactions. Known tuberculous patients have given negative reactions and then been observed for a long time or cured as reported by Heinemann,⁵⁰ Sabrazes, Duperes¹⁴ and others.

In our own work we had 52 patients who died after being subjected to these reactions (see above table). Twenty-six of the patients reacted positively and 26 negatively. Of those who died in the first ten days, after one or the other of these reactions, 7 reacted positively and 11 negatively. Of 11 patients who died in

from 10 to 20 days after inoculation 5 reacted positively and 6 negatively. Ten patients died in from 20 to 30 days after inoculation, of whom 3 reacted negatively and 7 positively. Of 5 patients who died in from 40 to 50 days after inoculation, 3 reacted positively and 2 negatively. Nine patients lived for from 50 to 128 days after being inoculated; four of these reacted negatively and 5 positively. Three patients who were not considered tuberculous clinically, and on whom the postmortem findings were negative, gave positive reactions. One of these gave a positive cutaneous reaction 6 days before death. One gave a positive cutaneous and

TABLE 1.—CUTANEOUS REACTIONS.—POSITIVE TUBERCULOSIS

Author.	No. of Cases.	Age.	Reaction.		Control Diagnosis.	Reaction.		Control Diagnosis.
			Pos.	Per Cent.		Neg.	Per Cent.	
1. Pirquet ¹.....	.....	5-14	.....	88	.....	.....	12	.....
2. Olmer and Terres ⁷⁰	37	.....	20	.....	.....	11	.....	.....
3. Baginsky ⁵³	1	Child	.....	.....	.....	1	.....	Pos. to 0.5 and 0.2 mg. sub.
4. Wolf ²³	19	17 adults, 2 child.	12	63.2	First and second stage.....	7	36.8	First and second stages.
5. Reuschel ³⁰	28	.....	10	.....	Tuberculosis, 7 cases, au-	18	.....	20 of this number = + clini-
.....	14	.....	14	.....	topsy; 6 + and 1 - subcu-	.....	.....	cal findings and 8 were +
.....	.....	.....	.....	.....	taneous.	.....	.....	.....
6. Necker and Paschkis ¹⁹	19	.....	19	.....	Animal inoculation.....	5	26.3	.....
7. Bing ⁷¹	19	.....	14	73.7	.....	1	.....	.....
8. Warfield ³⁴	12	Adult.	11	.....	.....	.....	.....	.....
.....								
.....	143	.....	100	70	.....	43	30	.....

TABLE 2.—SUSPECTED TUBERCULOSIS

Author.	No. of Cases.	Age.	Reaction.		Control Diagnosis.	Reaction.		Control Diagnosis.
			Pos.	Per Cent.		Neg.	Per Cent.	
1. Pirquet ¹	23	Child.....	5	.....	Autopsy +.....	18	.....	Autopsy, 15 negative.
2. Wolf ²³	90	5-13 23 adults.	47	52.2	27 of these suspect, 16 or 59.2 per cent. = + reaction; 25 or 92.5 per cent = +, 11 subcut. Pos. findings in 7 of above 27 by x-ray.	43	47.8	.....
3. Reuschel ³⁰	14	.....	14	.....	Pleuritis, serose, scrofula, clinical T. B. C.	.....	.....	.....
4. Bing ⁷¹	36	.....	25	69	.....	11	31	.....
5. Warfield ³⁴	32	8-51	16	.....	.....	16	.....	.....
Total.....	195	.....	107	55	.....	88	45	.....

TABLE 3

Author.	No. cases.	Reaction.		Control Diagnosis.	Reaction.		Control Diagnosis.
		Pos.	Per cent.		Neg.	Pr. ct.	
1. Pirquet ¹	16	..	16	.....	14	..	.....
2. Olmer & Terres ⁷⁰	17	3	..	.....	7	..	Autopsy subcutaneous.
3. Reuschel ³⁰	8	.....	.....	Autopsy leukemia..	18	..	.....
.....	18	1	..	.....	22	..	Animal inoculation.
4. Necker & Paschkis ¹⁹	23	1	.....	Animal inoculation.	152	81.8	.....
5. Bing ⁷¹	186	34	18.2	.....	.....	.....	.....
Total.....	252	39	15	.....	213	85	.....

TABLE 4

Author.	No. cases.	Reaction.		Control Diagnosis.	Reaction.		Control Diagnosis.
		Pos.	Per cent.		Neg.	Pr. ct.	
1. Pirquet ¹	..	..	35	.....	..	60	.....
.....	..	..	2	.....	..	98	.....
2. Engel & Bauer ²⁰	48	6	..	1 cut. T. B. C. 4— to subcut. test. 1 + to subcut.test.	42	..	.....
3. Baginsky ⁵³	19	12	..	.....	7	..	.....
4. Warfield ³⁴	55	54	..	.....	1	..	Mother T. B. C. Neg. to 5 and 10
.....	51	15	..	Reacted to 1 mg. T. O. subcutaneous.	36	..	mg. T. O. subcutan.
.....	1	1	..	.....	1	..	.....
.....	1	..	..	.....	3	..	.....
.....	6	3	..	.....	.....	.....	.....
Total.....	181	91	50	.....	90	50	.....

70. Presse méd., Sept. 18, 1907.

71. Berl. klin. Wehnschr., March 16, 1908.

TABLE 5
CONJUNCTIVAL REACTIONS
POSITIVE TUBERCULAR

Author.	cases.	Reaction. Pos. Per cent.	Control Diagnosis.	Reaction. Neg. Pr. ct.	Control Diagnosis.
1. MacLennan ²⁷	25	23	..	2	..
2. Kohler ⁷²	169	161	51	8 49	4.7 8% + to 4% O. T. 41% + to 2% O. T.
3. Maillet ³⁷	4	4	..	..	..
4. Plehn ²⁹ (see article)	38	31	81.6	7 18.4	..
5. Cohn ⁹	86	60	2 3 not in terminal stage.	26	2
6. Colzolari ⁷³	12	3	..	9	..
7. Wolff ²³	20	14	70 18 adults, 2 children.	6 30	Early 2d stage tubercular.
8. Webster & Kilpatrick ²⁵	43	43	..	3	..
9. Letulle ⁷⁴	75	72	..	1	..
10. Grasset & Rumdand ⁷⁵	7	7	..	..	..
11. Proff ⁷⁶	13	13	..	..	..
12. Smithies & Walker ³⁶	29	29	1 after 1 and 5 mg. T. O. 1 slight after 1 mg. T. O. 2 marked after 1 mg. T. O. 1 after 1, 5 and 10 mg. T. O.	..	..
13. Baldwin ³	53	50	..	3 ..	1 miliary tuberculin; 1 tuberculin treated.
14. Schenck & Seiffert ⁴⁷	28	27	..	1	..
15. Lenhartz	37	33	..	4	..
16. Citron ⁷⁹	31	25	..	6	4 tuberculin treated.
17. Eppenstein ⁸²	85	60	..	25	..
18. Mentoux ²⁶	15	14	..	1	..
19. Schroeder & Kaufmann ²⁴	48	43	..	5	..
20. Franke & Ratjen	6	6	..	..	..
21. Andeoud ⁷⁶	13	12	..	1	..
22. Blumel-Claruss ⁷⁷	289	260	..	29	..
23. Calmette, Breton, Petit, Painblan and other authors ⁸³	111	108	..	3	..
24. Comby ⁷⁸ (children)	62	62	..	..	..
25. Bing ⁷¹	6	3	50	3 50	..
26. Citron ⁷⁹	36	70	81	16 19	..
..	14	2	14.4	12 85.6	..
..	15	14	93	1 7	..
27. Mentoux ²⁶	10	..	..	10	..
28. Moro ³	8	6	..	3 ..	Per cent. react.—1. Per cent. react.—1. Per cent. react.—3.
..	12	12	..	..	..
..	4	1	..	..	..
29. Heinemann ²⁹ (1st, 2d, 3d)	25	20	..	..	3 cases init. hemorrhage.
..	18	18	..	..	..
..	5	2	..	3	..
30. Levi ²²	69	45	66	18 ..	14 advanced; 4 not advanced or cachectic; 1 unilateral tuberculous kidney; 1 tubercular prostate; 1 T. B. C. knee.
Total	1,572	1,352	86	214 14	..

TABLE 6

SUSPECTED TUBERCULAR

Author.	No. cases.	Reaction. Pos. Per cent.	Control Diagnosis.	Reaction. Neg. Pr. ct.	Control Diagnosis.
1. MacLennan ²⁷	12	9	..	3 ..	Clin. 1 tubercular hip 2 yrs. +2 react.
..	12	10	..	2 ..	10 mg. T. O. subcutaneous.
..	20	19	..	1 ..	Anim. inoc. sacral abscess.
2. Kohler ⁷²	5	2	..	..	..
3. Cohn ⁹	32	23	..	9 ..	Not all negative to subcutaneous.
4. Wolff ²³	64	20	39.2	43 61.2	..
5. Webster & Kilpatrick ²⁵	58	36	..	18 18	Phys. ex. + .1 mg. O. T. bacilli in sputum 1 month previous.
..	16	6	..	7 7	Phys. ex.?
6. Grasset & Rumdand ⁷⁵	5	5	..	..	..
7. Proff ⁷⁶	6	..	..	3	..
8. Smithies & Walker ³⁶	6	6	..	6 ..	Babies born; tubercular mother.
9. Baldwin ³	26	8	..	14 ..	Clinical.
10. Schenck & Seiffert ⁴⁷	20	6	30	..	No positive physical findings.
..	..	6	30	..	..
..	..	3	15	5 25	..
11. Lenhartz	63	23	..	40	..
12. Citron ⁷⁹	14	11	..	3	..
13. Eppenstein ⁸²	89	38	..	51	..
14. Metraux	11	9	..	2	..
15. Schroeder & Kaufmann ²⁴	9	4	..	5	..
16. Franke & Ratjen	12	9	..	3	..
17. Andeoud ⁷⁶	3	1	..	2	..
18. Comby ⁷⁸ (children)	70	..	..	70 ..	Clinically, 6 autopsy.
19. Bing ⁷¹	15	6	..	9	..
20. Citron ⁷⁹	18	10	55.5	8 44.5	..
21. Mentoux ²⁶	3	3	..	..	..
22. Moro ³	17	10	..	7 ..	Per cent. react. — 1.
22. Heinemann ²⁹	33	22	..	11	..
Total	642	308	48	334 52	..

72. Deutsch. med. Wchnschr., 1907, No. 50.

73. Riforma medica., July 26, 1907.

74. Bull. Soc. d. h p. de Paris, Aug. 31, 1907.

75. Bull. Soc. d. h p. de Paris, Aug. 31, 1907.

76. Bull. m d., 1907, xl, No. 20.

77. Med. Klin., 1907, No. 50.

78. Presse m d., 1907, No. 10.

79. Sitz. d. Berl. med. Gesellsch., July 24, 1907; Deutsch. med. Wchnschr., Feb. 20, 1908.

80. Compt. rend. Acad. d. Sc., July 7; la Presse m d., July 13, 1907, No. 56.

TABLE 7

OTHER DISEASES NON-TUBERCULAR

Author.	No. cases.	Reaction. Pos.	Per cent.	Control Diagnosis.	Reaction. Neg. Pr. ct.	Control Diagnosis.
1. MacLennan ³⁷	20	4	..		16	
2. Maillet ³⁷	4	4	..			
3. Plehn ²⁹	5	2	..	Typhoid, acute articular rheumatism, acute bronchitis, scarlet fever, enteritis, pleurisy and pregnancy, reaction reappeared with return of rheumatism.	3	Typhoid, acute articular rheumatism, acute bronchitis, scarlet fever, pleuritis and pregnancy two weeks later.
	12	6	..		6	
	6	3	..		3	
	5	2	..		3	
	3	3	..		1	
	1	1	..			
	1	1	..			
4. Cohn ⁹	192	10	..		182	
5. Calzolari ⁷³	19	..	..		19	
6. Letulle ⁷⁴	50	19	..		31	
7. Grasset & Rumdand ⁷⁵	14	..	..		14	
	1	1	..			
8. Smithies & Walker ³⁰	136	10	..		126	
9. Baldwin ⁸	57	16	..	Clinical.....	41 ..	Clinical.
10. Schenck & Seiffert ⁴⁷	52	3	57			
	..	11	22		26	Clinical.
	..	12	23	Clinical		
11. Citron ⁷⁹	45	1	..		44	
12. Eppenstein ⁶²	13	4	..		9	
13. Mentoux ²⁰	42	2	..		40	
14. Schroeder & Kaufmann ²⁴	20	12	..		8	
15. Franke & Ratjen	33	4	..		29	
16. Andeoud ⁷⁰	15	..	..		15	
17. Calmette, Breton, Painblan, Petit and other French authors ⁵⁰ ..	87	1	..		86	
18. Moro ³	25	6	..	Per cut. + 8.....	19	
19. Heinemann ⁶⁹	63	10	..		53	
Total	932	152	17		779	83

TABLE 8

CLINICALLY NORMAL INDIVIDUALS

Author.	No. cases.	Reaction. Pos.	Per cent.	Control Diagnosis.	Reaction. Neg. Pr. ct.	Control Diagnosis.
1. Maillet ³³	15	..	..		15	
2. Webster & Kilpatrick ²⁵	4	2	..		2	
3. Proff	17	..	..		17	
4. Smithies & Walker ³⁰	76	2	..		74	
5. Baldwin ⁸	47	16	..	Not all physicians' findings	30	One reacted to a 2 per cent. solution which had been — to 10 mg. T. O.
6. Bing ⁷¹	79	1	1.2		78	98.8
7. Citron ⁷⁹	100	6	6	Clinical	..	..
8. Mentoux ²⁰	13	13	..	Clinical	..	..
Total	351	40	11		311	89

TABLE 9

TABLE OF SCHROEDER AND KAUFMANN

Author.	Positive Tuberculosis.			Suspected Tuberculosis.			Non-Tuberculous.		
	No.	Pos.	Neg.	No.	Pos.	Neg.	No.	Pos.	Neg.
Lenhartz	38	33	4	63	23	40	11	4	7
Cohn	86	60	26	3	23	9	192	10	182
Citron	31	25	6	14	11	3	45	1	44
Kohler	169	161	8	5	5	..	..	..	..
Eppenstein ..	85	60	25	89	38	51	13	4	69
Baldwin	53	50	3	26	8	18	57	16	41
Metraux	15	14	1	11	9	2	42	2	40
Schenck-Seyffert	28	27	1	20	15	5	52	26	26
Andeoud	13	12	1	3	1	2	15	..	15
BlumelClarus..	289	260	29	..	..	..	..	..	..
Calmette u. a. franz. authors	111	108	3	..	..	..	87	1	86
Schroeder-Kaufmann	48	43	5	9	4	5	20	12	8
							(Nor) 18	12	6
Franke-Ratjen..	6	6	..	12	9	3	33	4	29
Total	971	859	112	284	146	138	627	80	547
Per cent.		88.5	11.5		51.4	48.6		12.7	87.3

TABLE 10

CASES OF ENGELBACH AND SHANKLAND

POSITIVE TUBERCULOSIS

	Positive		Negative		Total.
	No.	Per cent.	No.	Per cent.	
Cutaneous	31	56.4	24	43.6	55
Conjunctival	52	74.3	18	25.7	70
Total	83	66.4	42	33.6	125

TABLE 11

SUSPECTED TUBERCULOSIS (OTHER THAN PULMONARY.)

	Positive		Negative		Total.
	No.	Per cent.	No.	Per cent.	
Cutaneous	30	55	25	45	55
Conjunctival	21	52.5	19	47.5	40
Total	51	54	44	46	95

TABLE 12

CLINICALLY PULMONARY TUBERCULOSIS

	Positive		Negative		Total.
	No.	Per cent.	No.	Per cent.	
Cutaneous	28	66.66	14	33.3	42
Conjunctival	15	28	38	72	53
Total	43	47	52	53	95

TABLE 13

OTHER DISEASES NON-TUBERCULOUS CLINICALLY

	Positive		Negative		Total.
	No.	Per cent.	No.	Per cent.	
Cutaneous	149	56.5	119	43.5	268
Conjunctival	102	24.4	315	75.6	417
Total	251	36.6	434	63.4	685

TABLE 14

CLINICALLY NORMAL INDIVIDUALS

	Positive		Negative		Doubtful		Total.
	No.	P.C.	No.	P.C.	No.	P.C.	
Cutaneous ...	41	51	18	22.8	20	25.3	79
Conjunctival..	18	25.5	46	65.8	6	8.6	70
Total	59	38	64	44.3	26	16.9	149

negative conjunctival reaction 67 days previous to death. One gave positive reactions to both tests 73 days before death.

From the above we conclude that in known tuberculosis the kind of reaction has no bearing on the prognosis of the case. Positive reactions have occurred with us as early as one day before death; both reactions have been present in variable percentage as long as three months previous to death. The negative reactions have practically equaled the positive reactions in occurrence two or three months previous to death.

UNTOWARD EFFECTS OF THE CONJUNCTIVAL REACTION

The evidence of accumulating cases has unquestionably proven that the conjunctival instillation of tuberculin is not entirely free from danger. On the contrary, from the following report one must conclude that there is a liability of producing severe inflammatory processes in normal eyes, of aggravating non-tuberculous affections of the eye, and of producing an extension, and in some cases a rapidly destructive process, in tuberculous affections of the eye, from its use. McKay⁶¹ reports a severe conjunctivitis lasting over ten weeks in an eye that was normal previous to the instillation of a 1 per cent. solution. Eppenstein⁶² reports three cases of conjunctival phlyctenular keratitis which were greatly exaggerated, and says that chronic hyperemia, blepharitis or conjunctivitis of any kind contraindicates its use.

Ferrien⁶³ reports a conjunctivitis lasting two months, which terminated by having the aspects of tuberculosis of the conjunctiva. Babier and Renon⁶⁴ have observed conjunctivitis persist for one or two months. Stevenson reported three cases of follicular conjunctivitis which existed from 20 to 40 days. Kalt⁶⁵ reports serious results in iritis, sclerokeratitis and iridochorioiditis. Trousseau⁶⁶ reports a marked extension of a tubercle of the conjunctiva immediately following the instillation of a 0.5 per cent. of tuberculin. In another case a tuberculous iritis was greatly aggravated, although the reaction was negative. Babier⁶⁴ reports keratitis and ulceration of the cornea from a conjunctival reaction. A large majority of other authors, not oculists, have observed more or less unfavorable results varying in degree and severity from this test.

Besides these local untoward reactions Wolff²³ observed a very marked febrile reaction in the conjunctival test. Wolff-Eisner⁶⁷ and many others obtained general reactions. Proff noted that the tuberculo-opsonic index was modified by these reactions, and that in some cases the negative phase was marked and unusually prolonged.

We wish to take this opportunity of expressing to senior house physicians, Dr. R. Bunch and Dr. F. Esselbruegge our appreciation for services rendered us in the preparation of this article.

CONCLUSIONS

The diagnostic value of these reactions in adults is restricted to many limitations:

1. The specificity of these reactions have as yet not been demonstrated.
2. The activity or extent of the lesion bears no definite relation to the degree or kind of reaction.
3. The conjunctival reaction is not free from danger.

THE CONDITION OF THE PERIPHERAL BLOOD VESSELS IN SHOCK*

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From a purely historical point of view the literature devoted to shock may be divided into three periods: 1, From 1795, when the word shock was first used as we now use it, down to the beginning of the era of experimentation in 1870; 2, the period from 1870 to 1885, devoted to careful experimental investigations; and, 3, from the reopening of the question by Crile in 1889 down to the present time. From 1885 to 1889 practically no papers other than purely casuistic ones appeared on the subject.

THEORIES IN REGARD TO SHOCK

The excellent summary published by Mansell Moullin¹ in 1882, and the encyclopedic volume contributed to the subject by Groeninger² in 1885 render it unnecessary to restate the historical development of the theme. It is of more than passing interest, however, to note that those views regarding shock which are most commonly accepted to-day differ but little from opinions published nearly half a century ago. It does not seem to be known generally that as early as 1864 W. W. Keen, S. Weir Mitchell and G. R. Morehouse³ enunciated practically the same theory as that put forward by Crile nearly forty years later. I have been able to find only one reference to this work by Keen, Mitchell and Morehouse, and that reference was in a German monograph. The experimental work of Fischer⁴ in 1870 confirmed the theory proposed by Keen, Mitchell and Morehouse, and set on a fairly firm basis the idea that shock was due to vasomotor exhaustion. Leyden,⁵ however, took issue with Fischer and announced his belief to be that shock was due to a reflex inhibition of the activity of the centers of the cord. Meltzer,⁶ in the most recent paper contributed to the shock question, practically coincides with the theory of Leyden. The theory recently expounded by Boise,⁷ that cardiac exhaustion is the main underlying factor in shock, is a reiteration of the conclusion of Blum⁸ published in the seventies.

It is in no disparaging sense that we emphasize the fashion in which old views have been rehabilitated. Indeed, we feel that every contribution that we have mentioned has been of importance. Crile's⁹ work, for example, furnishes the most comprehensive data ever contributed to the shock problem and has been instrumental in starting anew investigations as to the cause of one of the most dreaded surgical complications. Our purpose is rather to express agreement with Meltzer, when he says that despite all theorizing and experimentation, "the bringing forward of new experimental facts capable of shedding some more light on our puzzling problem is not yet a superfluous luxury."

Meltzer, in his paper, points out the fact that Crile fails to draw a distinction between surgical shock, with

* An Experimental Study from the Physiological Laboratory of St. Louis University Medical School.

1. Mansell Moullin, C. W.: *International Encyclopedia of Surgery*. London, 1882.

2. Groeninger, G. H.: *Ueber den Shock*. Weisbaden, 1885.

3. Circular No. 6. Surgeon-General's Office, 1864.

4. Fischer, H.: *Samml. klin. Vortr. (Volkmann's)*, 1870, No. 10.

5. Leyden, E.: *Samml. klin. Vortr. (Volkmann's)*, 1870, No. 2.

6. Meltzer, S. J.: *The Nature of Shock*, *Arch. Int. Med.*, July, 1908, 1, 571.

7. Boise, E.: *Am. Jour. Obst.*, 1907; *Tr. Am. Gynec. Assn.*, 1908.

8. Blum, A.: *Arch. gén. de méd. de Paris*, January, 1876.

9. Crile, C. W.: *Blood Pressure in Surgery*, Philadelphia, 1903; *An Experimental Inquiry into Surgical Shock*, Philadelphia, 1899.

61. *Boston Med. and Surg. Jour.*, March 12, 1908.

62. *Med. Klin.*, Sept. 8, 1907.

63. *Bull. Soc. d'Ophth. de Paris*, Oct. 8, 1907.

64. *Bull. et mém. Soc. d. hôpitaux de Paris*, Dec. 12, 1907.

65. *Bull. Soc. d'Ophth. de Paris*, Oct. 8, 1907.

66. *Jour. de méd. et de Chir.*, Jan. 10, 1908.

rapid onset of symptoms, and traumatic shock, with slow onset of symptoms. This criticism makes it incumbent on anyone who deals with this problem to define his terms at the very outset. The term "shock" has assumed a medical significance so peculiarly its own that the primitive idea expressed by the word has almost been lost sight of. Originally "shock" signified a concussion or a blow, but toward the middle of the eighteenth century English medical writers began to use the word in explanation of the subtle and unexplained effects resulting from a severe blow or concussion. This latter use became so common that the word finally stood, not for the force itself, but for its resultant destructive tendencies.¹⁰ The essence of this idea is so inherently bound up in the word that the French and German schools have been forced to adopt the word bodily, after numerous and futile attempts at translation by such terms as *impressionabilité extraordinaire*, *léthargie des blessés*, *épuisement par la douleur*, *résolution général des forces*, *syncope*, *Wundstupor*, *traumatische Torpor*, *Schuss-Erschütterung*, *Wundschreck*, *Neuroparalyse*, etc.

This difficulty in translation emphasizes a fundamentally important fact, namely, that the word represents an intricate symptom-complex and does not stand for a specific clinical actuality. The elder Gross¹¹ furnished the most graphic and satisfying description of this symptom-complex when he said that it was the manifestation of a rude unhooking of the machinery of life. It is confusing to adopt Meltzer's views regarding traumatic and surgical shock, for, after all, we assume that every type of shock results from trauma. Scientific accuracy will not admit the use of Howell's¹² classification of "cardiac" and "vascular" shock, for other vital functions besides the cardiac and vascular ones have been shown to be involved. So we shall use the word in the sense of an unhooking of vital machinery, bearing in mind that the onset of symptoms may be sudden or rapid, or at times insidious, and that either erethism or torpor may be characteristic symptoms.

As the problem stands to-day there are several contradictory theories. Crile and his followers maintain that vasomotor exhaustion is the primary cause of shock, Boise states that cardiac exhaustion is the prime cause, whereas Howell believes that both these factors (cardiac and vascular) must be reckoned with. Meltzer, after a critical survey of the literature, concludes that shock is consequent on the development of the inhibitory side of all the functions of the body. Kinnaman¹³ argues for a disturbance of the thermogenic function, Jaboulay¹⁴ for the formation of an irreducible oxyhemoglobin, Vale¹⁵ for an increased specific gravity of the blood, Henderson¹⁶ for the reduction of the carbon dioxide content of the blood and tissues (acapnia), Bainbridge and Parkinson¹⁷ for a loss of chromaffin tissue following

trauma, and Schur and Weisel¹⁸ for a loss of this same tissue following the administration of volatile anesthetics.

Our object is neither to criticize these various theories nor to add a new theory to the already formidably long list. Cardiac excitation and inhibition, vascular dilatation and contraction, the *modus operandi* of the sympathetic nervous system, the complex phenomena of exhaustion and inhibition, would all have to be taken into account by a theory, despite the fact that not one of the factors that we have mentioned is understood fully.

This much is certain, however: that low blood pressure is a constant accompaniment of a pronounced degree of shock—so constant, indeed, that investigators practically always express the state of shock in terms of manometric pressure. We have based our experiments on the fact that the blood pressure is always low in shock, and we have set as our problem the determination whether the peripheral vessels are contracted or dilated during the time that the pressure is low in the larger, more centrally situated vessels, such as the carotids.

Mitchell, Morehouse and Keen, Groenigen and others assert that the peripheral vessels are not contracted, because, in the first place, no one has ever shown that they are, and, in the second place, because it is not probable that the peripheral vessels can be contracted tightly for any great length of time.

Crile argues that, consequent on vasomotor exhaustion, the peripheral vascular system is paralytic and, therefore, relaxed. Porter,¹⁹ on the other hand, denies Crile's contentions *in toto*, and seems to show that the vasomotor center is not exhausted. Neither Crile nor Porter, however, directed their attention to the vessels themselves.

Malcolm²⁰ of London, dealing with the problem from a purely clinical point of view, makes two assertions: 1, that the peripheral vascular system is contracted in shock; and, 2, that a state of low blood pressure is thoroughly consistent with contracted peripheral arterioles. Malcolm makes an uncommonly strong clinical argument against the views of Crile in a fashion that refreshingly demonstrates the invaluable aid of clinical medicine to laboratory experimentation. If the theory of vasomotor exhaustion is correct, says Malcolm, then the network of smaller peripheral arterioles, being cut off from central control, must be relaxed. This relaxation should result in an overfilling of the vessels, but, as a matter of fact, all clinical evidence speaks against such an overfilling: the body surface is cold and pale, the mucous membranes are anemic, incisions made during the state of shock are almost bloodless, the radial pulse is often small to the degree of being impalpable, and the application of surface warmth tends to lessen the symptoms of shock, despite the fact that warmth usually relaxes vessels.

There are three possible ways of determining whether the peripheral vessels are dilated or contracted: 1, the vessels may be inspected visually; 2, the outflow of blood from an organ or extremity may be measured; 3, coincident variations in venous and arterial pressure may be measured. In our work, which has been done on dogs, we have used only the first two or three methods. We studied visually the vessels of the retina and measured the outflow from the femoral vein. We selected

10. It is interesting to note the beginning of a tendency to modify the character of the word again, so that in addition to signifying the destructive results of external force, it will also express the idea of constructive results. For example, Wetherill has published an article entitled "The Conservative Agency of Shock," *THE JOURNAL A. M. A.*, March 12, 1908, xxx, 578. Furthermore, we find in recent biologic contributions, statements such as: "Mutation in species may be considered to result from a shock to the organism, the shock being stronger than normal hereditary impulses." In other words, shock enables the organism to construct something new, and possibly useful.

11. Gross, S. D.: *System of Surg.*, Philadelphia, 1872, i, 426.
12. Howell, W. H.: *Vaughan Festschrift*, Ann Arbor, 1903, p. 51.
13. Kinnaman, R. C.: *Internat. Jour. Surg.*, 1904, p. 378.

14. Jaboulay, L.: *Lyon méd.*, 1904, p. 378.

15. Vale, F. P.: *Med. Rec.*, Aug. 27, 1904.

16. Henderson, Y.: *Am. Jour. Physiol.*, 1908, p. 126.

17. *Lancet*, 1907, p. 1269.

18. *Wien. klin. Wchnschr.*, Feb. 20, 1908.

19. Porter, W. T.: *Am. Jour. Physiol.*, 1907-08, pp. 399, 444, 500.

20. Malcolm, J. D.: *Lancet*, 1905, i, ii, 573, 618, 737, 922; *Med. Chir. Tr.*, 1908.

the eye as the site of visual inspection of the caliber of the vessels, because this is the only situation where the vessels can be studied without the necessity of exposing them by dissection. It is unnecessary to say that the caliber of a vessel that has been traumatized by dissection affords no reliable index of the caliber of that same vessel in an undisturbed state. We selected the femoral vein from which to measure the outflow because the circulation in the extremity is, in the strictest sense of the word, peripheral, and because the femoral vein is more accessible than is the axillary.

METHOD OF EXPERIMENTATION

Our procedure was as follows: Under Grehant anesthesia the carotid artery was connected to a recording manometer and the blood tracing started. Both femoral veins were dissected free, ligated where they leave the thigh to enter the abdomen, clamped just below this, and divided between ligature and clamp. Paraffined canulas were tied into the distal ends of the veins. Both sciatic nerves were dissected free at the posterior aspect of both thighs, and a bridle ligature was placed under each nerve so that it could be drawn out and divided with ease and rapidity. Only a minimal amount of fall of blood pressure resulted from this preliminary, as a rule.

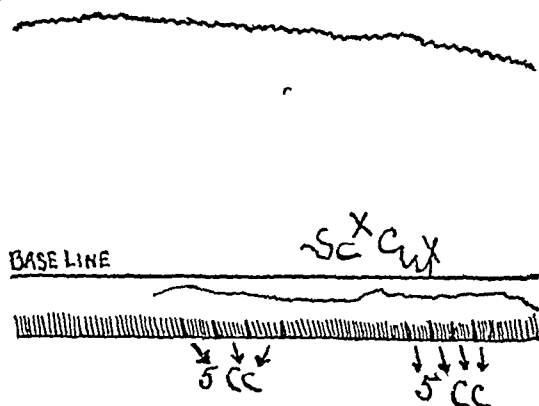


Fig. 1.—Tracing indicating outflow of blood in experiment on Dog 3. Moderate blood pressure. No evidence of shock. Division of sciatic (at X) followed by more rapid outflow of blood from femoral vein. Time markings, 1 second.

The clamp was now removed from the left femoral and the blood allowed to flow through the canula into a tall glass graduate of moderately small caliber. After about 25 or 30 c.c. had flowed out and the current of blood was running smoothly and evenly, readings were begun in order to note the rapidity of the flow. The method of making these readings was as follows: At the moment the reading was begun an electric button connected with the second-time marker was pushed. After 5 c.c. of blood had flowed the button was pushed again, and this was repeated at the completion of the flow of each fifth cubic centimeter of blood until the time record on the drum showed four or five periods, each one representing the time flow for 5 c.c. of blood. Then the left sciatic nerve was severed and, after waiting a short while for the flow to steady, the time flow for 5 c.c. was recorded several times. The animal was then reduced by a state of shock, by manipulation and chilling of the abdominal viscera, and after the blood pressure showed a permanent fall, the blood flow was measured from the right femoral vein, just as it had been from the left one, before and after section of the right sciatic nerve.

The vast majority of vasomotor impulses that reach the blood vessels of the hind leg of a dog travel through the sciatic nerve; therefore, as is well known, severance of this nerve results in vasodilation in the extremity, and consequently in a more rapid flow of blood from the femoral vein. This point is illustrated by the tracing shown in Figure 1. Before the sciatic was cut it took seven seconds for 5 c.c. of blood to flow out, whereas after the sciatic was divided the same quantity of blood flowed out in five seconds. The crux of these experiments lay in the rate of outflow after the animal was reduced to a state of shock, for if in profound shock the vessels are beyond the control of the vasomotor centers, then severance of the sciatic nerve ought not to make any appreciable difference in the rate of flow. All our experiments showed that the proportional rate of flow from the vein was more rapid after division of the sciatic in a shocked animal than it has been from the opposite veins before the animal had entered the state of shock. Figure 2 is a continuation of the tracing shown in Figure 1, taken from Dog 3 of our series. This portion of the tracing represents a period when the animal was in a profound degree of shock. It will be noted that before the sciatic was divided it took nineteen seconds for 5 c.c. of blood to flow, whereas after section of the nerve it required only eleven seconds. This shows that the intact sciatic must have been transmitting impulses that were maintaining vascular tone. More than this, the proportionately more rapid flow²¹ can not be due to an actually greater dilatation of the vessels in one instance than in the other, because in both instances we have a maximal dilatation consequent

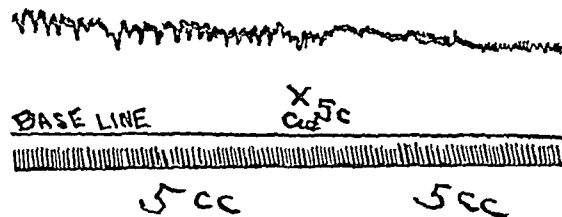


Fig. 2.—Tracing indicating outflow of blood in experiment on Dog 3. Very low blood pressure. Animal in profound shock approaching *exitus lethalis*. Division of sciatic (X) followed by a proportionately more rapid outflow from femoral vein than in Fig. 1. Time markings, 1 second.

on severance of the nerve. It must be due to the fact that during shock the vessels (arterioles and capillaries) are more contracted than they are before the animal shows the effects of trauma. It must be borne in mind clearly that these experiments do not show anything more than that the division of the sciatic nerve of a shocked animal causes dilatation of the vessels of the leg, just as it does in a normal animal. This dilatation, however, is proportionately greater than that which occurs in the normal animal, and this proportional difference must be referred to the fact that in the shocked animal, before division of the sciatic, the vessels are in a state of greater contraction than they are in the normal animal.

Two reasonable objections may be made to our results, on the ground, first, that the time measurements were not accurate in the strictest scientific sense, and, second, that the anterior crural nerve was not severed so as to cut off all possible vasomotor impulses to the leg. As

21. In the normal animal, the rate of flow before and after division of the sciatic was 7 to 5, whereas in the shocked animal the rate was 19 to 11. These two sets of figures demonstrate a proportionately more rapid outflow in the shocked animal.

regards time measurements, they were not taken automatically and were, therefore, not true to a fraction of a second. Repeated experiments, however, demonstrated that this source of error was minimal, and, furthermore, our object was not to measure the exact time rate. We did not sever the anterior crural, because we found this procedure to be unnecessary. Our object was not to cut off all impulses, but to block out most of them.

The task now remains to confirm by visual inspection the statement that the peripheral vessels are contracted. For reasons already stated, we selected the retina as our field for this part of our work, and we are indebted to Dr. John Green, Jr., for our ophthalmic reports. Unfortunately, we failed in efforts to devise a scheme for measuring, with absolute accuracy, the diameters of the retinal vessels. In order that Dr. Green might not be prejudiced by the facts already secured by us, he was not told about them, being merely requested to examine the fundi of the dogs' eyes, before and after shock was induced, and to note carefully the size of the vessels. He took the size of the optic disc as his standard and compared the size of the vessels with it. In every instance he reported that the vessels showed a marked degree of contraction after the animal was in shock. The vessels contracted down to from one-third to one-half of their size before shock.

Two observations were particularly interesting: In one case the dog died immediately after an examination of the fundus which had disclosed marked contraction of the vessels, thereby demonstrating that vasoconstriction persisted up to the very point of *exitus letalis*. Unfortunately, we neglected to examine any of the fundi after death in order to see if vascular relaxation occurred. The second observation of especial interest was a case in which the retinal vessels were contracted so tightly as to make them resemble mere strands. In this connection it is interesting to note that ophthalmic literature contains at least two reports²² of sudden blindness occurring during shock, lasting from two to five hours, and then passing off without leaving any demonstrable eye changes or disturbances of vision. Roberts, who makes these reports, does not give the fundus findings during the state of shock, nor does he attempt to explain the cause of the blindness; but it seems fairly reasonable to assume that the occurrence of a sudden acute anemia of the retina, resulting from pronounced contraction of the retinal vessels, might cause transient blindness.

CONCLUSION

In conclusion it is important again to emphasize the fact that the experimental work detailed in this paper is in no sense of the word to be taken as an explanation of the causative factor or factors of shock. Just as Porter claims to show explicitly that in shock the vasomotor center is not exhausted and, therefore, implicitly that the peripheral vessels are not paralyzed, so we try to show explicitly that the peripheral vessels are contracted, and implicitly that not all the vasomotor centers can be exhausted. The complexity of the vasomotor apparatus with its multiplicity of centers, and the seemingly independent action of many of these centers, render it impossible to frame a satisfactory theory based on our results. This much may be said with assurance: If the work herein detailed stands the test of confirmation, then the doctrine that shock is due to vasomotor exhaustion must be revised.

Clinical Note

A TYPHOID BACILLUS CARRIER

HISTORY AND AUTOPSY

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Since the comparatively recent discovery of what may be termed latent typhoid infection and its bearing on the spread of the disease, as well as its pathologic and bacteriologic significance, additional examples of this condition have been reported repeatedly.

As yet, however, the number of postmortem examinations of bacillus carriers has not been large, and the present instance is cited, not only as an example of the possibilities of transmission of infection under certain circumstances, but as an additional confirmation of the generally accepted belief in the origin of the bacilli in such cases.

HISTORY OF A BACILLUS CARRIER

The individual in question was a colored man admitted as a patient to the New Jersey State Hospital at Trenton in 1902. He was at that time sixty-seven years old, and presented then, or subsequently, nothing beyond the gradual mental and physical failure incident to his age, and was able to perform such light work as was assigned him.

During July and August, 1907, the institution was visited by an epidemic of typhoid fever, due to the contamination of a spring from a leaking city sewer, over one hundred cases resulting, with the usual mortality.

The patient (C.C.) then seventy-two years of age, became ill early in August, and responded positively to the agglutination test on the 13th. The course of the disease was exceptionally mild; the temperature was at all times low, rarely above 100 F.; and there were few, if any, subjective or objective symptoms, so that, in spite of his age and comparative weakness, the patient was able to be about in a little over three weeks from the time of onset. Indeed, so mild was the disease that the diagnosis was made entirely on the Widal reaction, this test being made at this time on all patients showing any signs of ill health whatever. In the absence of an epidemic it is probable that the few symptoms observed would have given no indications of the condition.

He made an uneventful recovery, and very quickly regained his usual health.

During the fall and winter (1907), following the epidemic, bacteriologic examinations of the urine of all convalescent patients (including C.C.) were made at the hospital laboratory, three examinations each of fifty-two convalescents being performed. Digalski-Conradi agar medium was used for this purpose, and in no instance were suspicious organisms isolated.

All patients were at this time kept segregated after having had typhoid and hexamethylamin (urotropin) systematically administered over a period of months. Subsequent to the urine examinations, in the spring of 1908, the Research Laboratory of the New York Health Department, under the direction of Dr. W. H. Park, undertook the examination of the feces of the same individuals, samples being sent to New York for this purpose. Three or more examinations of specimens from each patient were made, and, as already reported by Dr. Park,¹ two bacillus carriers were discovered, one being the patient C. C. Four consecutive fecal examinations of this patient during March and April each showed typhoid bacilli in large numbers. He was at once isolated and rigid disinfection of all discharges carried out. No further cases occurred. It is here of interest to note what would have been the inevitable consequences, had not these individuals been recognized.

1. Park, William: Typhoid Bacilli Carriers, *THE JOURNAL A. M. A.*, Sept. 19, 1908, 11, 981.

22. Roberts, W. O.: *Am. Pract. and News*, 1907, p. 24.

As is now generally conceded, the opportunities and frequency of contact typhoid infection under ordinary circumstances are great, but in large institutions, particularly for the insane, these are enormously multiplied.

Where large numbers of patients are in close daily contact in dormitories, wards and dining rooms, many of whom from their mental condition are careless or filthy in their habits, the direct transference of infection, in spite of all ordinary precautions and watchfulness, is unavoidable. Nieter and Liefmann, in 1906, reported a series of typhoid outbreaks in an insane asylum due to this cause, and Friedel in the same year cites another instance in which sixty-three cases resulted in another similar institution. Liebrau speaks of an attendant in a jail who caused four cases, but who had herself never been ill.

Following his isolation, the history of C. C. was uneventful, and nothing of note in his physical condition was observed up to his last illness, with the exception of a trifling and irregular diarrhea, alternating with mild constipation.

Although the gall bladder and small intestine were found involved at autopsy, no essential symptoms of these conditions were observed during life. C. C. continued in his usual condition, though gradually failing in strength from old age, up to within six weeks of his death when he developed an irregular temperature, accompanied by signs of thoracic disease, became progressively weak and emaciated, and died Oct. 16, 1908, one year and three months after having had the attack of typhoid.

AUTOPSY

The autopsy was performed three and a quarter hours after death. Nothing beyond a senile appearance and rather marked emaciation was noted externally. The brain was typical of senile atrophy, and close inspection of the pia failed to detect anything except the usual changes of this condition, though microscopically an interesting condition was discovered. The left seventh rib was found detached from the vertebra at the articular process, and the severed ends were surrounded by a small pocket of thick yellow pus.

The left pleura was enormously thickened, and the lung deeply engorged and firmly attached to the chest wall. The upper lobe of the right lung showed lobar consolidation, and the heart a rather severe grade of brown atrophy. The aorta and other large trunks were sclerotic and contained a moderate number of atheromata. The spleen was small, tough and fibrous, but macroscopically showed nothing further. The liver was small, mottled in appearance, uneven on the surface and thickly studded with minute grayish solid bodies and fasciculi taken at autopsy to be fibro-connective tissue.

On making a minute opening in the gall bladder for the purpose of taking cultures, a small amount of clear mucoid bile escaped; the rest of the bile, however, which completely filled the gall bladder, was dark yellowish brown, thick and partially inspissated. A dark greenish-black, smooth oval calculus, 1.5 by 0.5 cm., was present; and the mucosa was very dark and slightly thickened. The cystic, hepatic and common ducts were unobstructed.

There was a well-marked chronic interstitial nephritis, and one kidney contained a small sclerotic nodule at the junction of the cortex and medulla. The mucosa of the bladder was slightly injected, but otherwise negative.

In the intestine there were irregular areas in which the mucosa was mildly injected, and two small ulcers were found, each about 0.5 cm. in diameter. One was situated in the lower portion of the ileum, the other in the cecum. Both were circular, sharply circumscribed, involved the mucosa only, and showed complete absence of induration or surrounding reaction.

It was thought that, anatomically, we were dealing with a possible traumatic fracture of the seventh rib with secondary infection and involvement of the left pleura, a chronic senile leptomeningitis, fibroid spleen, and a rather marked chronic interstitial hepatitis.

On microscopic examination, however, the thickened pleura was seen to contain many characteristic giant cells, and the liver and spleen were studded with numerous and closely set

minute miliary tubercles, while the pia was the seat of the earliest stage of tuberculous meningitis. In fact, there had been a rapid and general dissemination of acute miliary tuberculosis, probably arising from a necrotic rib.

Whether this was primarily a post-typhoid necrosis secondarily infected with tubercle bacilli remains in doubt, though from its apparent comparatively recent occurrence this was probably not the case.

BACTERIOLOGIC EXAMINATION

Cultures were taken on lactose litmus agar from the region of the intestinal ulcers, the liver and bile. The latter were made in definite decimal dilutions from 1 to 0.00001 c.c., using sterile water as a diluting fluid, and incubated at 37.5 C.

On the plates made from the intestinal ulcers many red colonies developed, chiefly of the colon group, but none showed any resemblance to typhoid organisms, either on the plates or by subcultivation.

In twenty-four hour observations of the bile plates no colonies whatever could be distinguished on those made from the undiluted bile, or on the dilutions up to 0.0001 c.c., although a very delicate film appeared to cover the surface of the medium, which was unaltered in color. On the 0.0001 plate innumerable minute blue points could be distinguished with a hand lens, while on the plate of highest dilution (0.00001) an enormous number of distinct delicate bluish colonies could be seen, all of which were identical in appearance. It was impossible to count the colonies accurately, but it was estimated that they numbered between 1,500 and 2,000.

The plate cultures made from the liver by smearing a small bit of excised tissue over the bottom of the plate before pouring the agar, showed identical colonies varying in numbers from 100 to 1,000 on each plate. About twenty of the colonies from the bile and liver were subcultivated and tested for agglutination with a known typhoid serum tested against a stock culture of typhoid bacilli. The reaction was prompt and vigorous in dilutions of 1 to 50. A number of stains were then selected and subjected to cultural tests the results of which corresponded in every instance to those of *Bacillus typhosus*.

In stating the probable number of typhoid bacilli present in the bile in this instance, only approximate figures can be given, since the enormous overgrowth even in the highest dilution, obviously places the numbers too low, but as a conservative estimate it is safe to say that there were at least 20,000,000 per c.c., basing the estimate on the number of colonies developing on the least crowded plate.

The numbers developing in the liver cultures were correspondingly large, although from the nature of the material it is impossible to give these in as definite a manner as with fluids such as bile.

That the bacilli are found in the liver when present in the gall bladder is shown by the case reported by Levi and Kayser, who at autopsy of a bacillus carrier found them in the wall of the gall bladder, the liver and inside of calculi. In this instance the autopsy was performed nineteen hours after death, and the findings suggest that the bacilli invade the liver, postmortem, through the bile ducts.

This is believed to be the case in the present instance, for although tubercle bacilli were readily demonstrated in sections of the liver fixed in alcohol, the most careful search failed to detect the presence of either colonies or isolated bacilli in any portion of the liver tissue examined.

In an autopsy cited by Nieter and Liefmann, in 1906, they found not only the gall bladder involved and containing the organisms, but also a chronic catarrh of the lower intestine and many typical old typhoid ulcerations. This patient had suffered from chronic dysentery during life.

In the present case the patient also showed a mild catarrhal condition of the intestine, and ulcerations were present, but in no way did either lesion resemble a long-standing or chronic condition, nor were the ulcers of a nature to suggest a typhoid origin; and from the appearance of the lesions, rather than the failure to cultivate typhoid bacilli from them, they are regarded as unconnected with the infection of the gall bladder or the presence of the bacilli in the stools.

SUMMARY

The points of interest in the present case are:

The race and age of the individual (73 years at time of death).

The extreme mildness of the primary disease.

The constant presence of the organisms in the stools and their absence in the urine, following the attack.

The apparent failure of progressive and, toward the last, severe senile changes, together with an intense and widely disseminated tuberculous process to influence the course of the chronic typhoid infection.

The enormous numbers of the organisms found in the gall bladder and liver at autopsy.

The futility of hexamethylamin as a treatment for typhoid infection of the gall bladder.

And, finally, the extreme value of fecal examination of post-typhoid subjects in institutions where control is possible and the practice of rigid isolation and disinfection when carriers are discovered.

I am indebted to Drs. Sandy and Taylor of the State Hospital, under whose care the patient was, for the clinical facts, and to Dr. W. H. Park for the reports of the fecal examinations.

Therapeutics

ASTHMA

(Continued from Vol. LI, page 2160)

The best treatment of the paroxysm of asthma must be decided by a careful study of each individual patient. There is no one best treatment for the asthmatic attack. The drug that most frequently is successful in rendering the patient comfortable and shortening the paroxysm is, of course, morphin, but before the physician begins the treatment of the asthmatic attacks with morphin he should have exhausted his other resources, as he is not sure that he can cure the asthma, even if he removes the reflex cause, and such patients readily acquire the morphin habit. If a given patient is incurable under the surroundings and conditions in which he must live and no other drug will relieve his suffering, he doubtless has the right to receive morphin, even if he does form the habit.

In endeavoring to abort or shorten the attacks we may have recourse to the narcotics, which relieve the paroxysm by inhibiting the reflexes and dulling the receptive centers. Such drugs are morphin, bromids, chloral, and chloroform by inhalation.

Lobelia is depressant both to the circulation and to the nervous system, and can only be of value in sufficient dose to cause actual depression. It acts similarly to chloral and bromids, and probably no better.

Grindelia robusta depresses the circulation and depresses the nervous system, and is a narcotic. It also dilates the pupils. Consequently the action is not very dissimilar to chloral. It has often been used in bron-

chitis and asthma and in whooping cough to relax or prevent spasm. It has no advantage over chloral or bromids.

We may use drugs that dull the peripheral nerves and prevent their susceptibility to the irritation from which they are suffering and thus abort the paroxysm. Such drugs are mostly of the atropin group, as belladonna, stramonium and hyoscyamus. The effective action is atropin action, and doubtless atropin, and perhaps scopolamin (hyoscin) will do all the good that the crude drugs can do, although inhalation of the fumes from burning stramonium leaves has been used with success for centuries.

We may consider the treatment with such drugs as cause muscular relaxation by prostration. Such are emetics, and nicotin with patients who are not used to its action.

The next group of drugs whose action we consider in the treatment of asthmatic attacks are vasodilators. These drugs not only dilate the peripheral blood vessels and therefore relieve congestion in the mucous membranes of the respiratory tract, but also are preventers of muscular spasm. Such are, of course, the nitrites in the form of amyl nitrite, sodium nitrite, and nitroglycerin. The iodids will also cause lowered blood pressure, but are hardly of value during the attack.

Many times quite the reverse of this dilating, relaxing treatment is indicated in an asthma paroxysm. The vasoconstrictors are indicated, and if used in these instances will abort the attack. The best are suprarenal solutions sprayed on the mucous membranes of the nostrils or throat, or into the larynx, or a suprarenal or adrenalin tablet may be dissolved and absorbed in the mouth. The action is of course immediate, and sometimes so is the relief. For the nostrils adrenalin spray solutions of from 1 to 10,000 to 1 to 5,000 (diluting with a mild alkaline solution) may be used. In the throat and larynx a strength of 1 to 3,000 may be used. Digitalis is sometimes of advantage in these attacks even if there is no cardiac lesion or cardiac debility. Intramuscular injection of an aseptic preparation of ergot is also sometimes efficient treatment in stopping the paroxysm.

Citrated caffein, or strong coffee, or strong decoctions of tea are of benefit during the asthmatic attack in some individuals. The favorable action of caffein must be due to the cardiac stimulation and possibly to stimulation of the respiratory center.

Strychnin given hypodermatically has been much recommended for the asthmatic attack. While it generally fails, it sometimes does a great deal of good to patients who have bad heart action. A combination of strychnin, morphin, and atropin given hypodermatically sometimes seems to act better than when the strychnin is omitted. Arsenate of strychnin in doses of perhaps 1/40 of a grain three times a day has been recommended in chronic asthma. This drug is very active and may cause unpleasant symptoms.

Almost from ancient times paroxysms of asthma have been treated by the inhalations of fumes from burning medicinal substances. For this purpose the medicated substance may be in the form of cigarettes, powder, cones, or papers. Sometimes the fumes of these burning powders are directly inhaled, or the patient's bedroom is allowed to become filled with the fumes. Sometimes the attack is relieved by the inhalation of steam, or the vapor of boiling water in the room of the patient adds some relief. Sometimes liquid medicaments are

added to boiling water in various apparatus for inhalation. Most popular, however, and most frequently used are the powders or papers, or pastils that are burned near the patient's face and inhaled directly.

Probably nearly all the powders or papers ordered by physicians for inhalation for asthma and almost all of the patented preparations and nostrums contain niter (saltpeter) and stramonium, or belladonna, or other atropin-containing drug. The action of the niter, i. e., potassium nitrate, fumes is to cause relaxation both of the blood vessels and of the bronchi. Papers are saturated with solutions of potassium nitrate, and when dry may be rolled in the form of a cigarette and smoked, or may be burned in any other form, and the fumes are beneficial to some patients. The addition of potassium nitrate to other medicinal powders causes them to burn more readily and give off their fumes.

Stramonium (leaves) is the most frequent form in which the alkaloid atropin is administered by inhalation. The action of the atropin thus locally applied is to dull the irritability of the peripheral nerves in the nose, throat and larger bronchial tubes, and thus by relieving irritation tends to relieve spasm. At the same time the atropin acts as a circulatory stimulant.

Various combinations of drugs are used for inhalation for asthmatics, many of which are nostrums (but have been analyzed) and have more or less efficiency in relieving the attack, because of the potent drugs often recklessly employed. The asthma nostrum vendor is looking mainly for immediate results, and he cares little what the danger to the patient may be or how strong a dose he gives; consequently, he orders used sufficient amounts of the drugs to cut short the asthmatic attack. Therefore, the prescription which a physician is willing to write may not be so successful in a certain case as the nostrum temporarily may be.

A French asthma cigarette contains the following ingredients.

Belladonna leaves	5½ parts
Hyoscyamus leaves	2¾ parts
Stramonium leaves	2¾ parts
Phellandrium aquaticum	1 part
Extract of opium	⅛ part
Cherry laurel water	A sufficiency.

— (Yeo).

The dried leaves are cut small, mixed well, and moistened with the opium which has been dissolved in the cherry laurel water. A small amount of potassium nitrate is added in order that the cigarettes may burn readily.

Some patented preparations contain lobelia, and something similar to Himrod's cure is as follows:

- "Powdered lobelia.
- Powdered black tea,
- Powdered stramonium leaves, each one ounce.

On this is poured two ounces of a saturated solution of potassium nitrate, which is thoroughly mixed and allowed to dry" (Yeo). Portions of this are then burned and the patient inhales the fumes. Certainly a great deal of cardiac depression may take place from the use of such strongly medicated inhalants.

Arsenical cigarettes also have been used by asthmatics, sometimes beneficially. Yeo says that "these are made by dissolving 15 grains of arsenite of potash in half an ounce of distilled water and saturating unsized paper with it. This is afterward dried, cut up into twenty pieces, each of which is rolled up into a cigarette. The smoke from the cigarette must be drawn into the bronchial tubes by a slow inspiration." It cer-

tainly is not obvious how arsenic can shorten an asthmatic attack. The administration of arsenic in small doses for some time may prevent the development of asthma, and chronic bronchitis is sometimes benefited by the prolonged use of arsenic.

Oxygen inhalations have sometimes been used by asthmatics, and with relief. This, however, is not very dissimilar to breathing the outside air, and will, of course, partly relieve the oxygen starvation. A patient who must go to the window and gasp for breath should, perhaps, have an oxygen tank in his room to use when he needs it.

It has been suggested (E. L. Smith, *Medical Record*, June 29, 1907) that some of the good effects of the inhalation of niter and stramonium are due to the vasoconstriction that the irritation of the fumes causes in the asthmatic areas, these being mostly in the nostrils.

There are various combinations of potassium nitrate, powdered stramonium, belladonna, and hyoscyamus leaves with aromatics, and anise seems to be the preferred spice.

The following is an example:

R.		gm.	
Potassii nitratis	15	15	
Pulveris anisi	15	15	or āā, 3ss
Pulveris stramonii	30	30	3i
M. et fac pulverem.			
Sig.	Ignite a thimbleful of the powder and inhale as directed.		

Many inhalants for asthma contain cocain, but these are probably mostly solutions for nebulizing.

Tucker's remedy was analyzed and modified by Einhorn and Schafer (*Münch. Med. Wochschr.*, 1907, Nos. 27-28). The following is their formula:

R.		gm.	
Cocainæ nitratis	1	1	gr. xv
Atropinæ nitratis	50	50	gr. viiss
Glycerini	30	30	fl. 5i
Aquæ	60	60	fl. 3ii
M. et sig.	To be used in a nebulizer.		

The spray from such a solution is certainly active, and it would seem unsafe to use it in large quantities. The best method would probably be to spray the nostrils or perhaps throat for a moment or two and then wait fifteen minutes and spray again, and perhaps again repeat if necessary. The immediate success of such treatment is, of course, entirely due to the cocain, and were it successful would demonstrate areas in either the nostrils or the throat that were the irritant or exciting cause of the asthma. Any patient who had frequent attacks of asthma and used this treatment is in danger of developing the cocain habit.

Cocain certainly entered into the constituency of many of the nostrums for the cure of hay fever and asthma, but not as many now as formerly, since most states compel the label to declare that cocain is present. Patients having learned to be more or less fearful of cocain do not buy the nostrums so readily, unless they have already acquired the habit. Consequently cocain has been taken out of many of the patented medicines.

If we were to sum up the best treatment for the paroxysm of asthma we must say morphin and atropin hypodermatically, the administration of nitroglycerin by the mouth, adrenalin or other suprarenal sprays into the nostrils or throat, or tablets containing suprarenal dissolved in the mouth, fumigation with potassium nitrate and stramonium, and cocain applications and sprays, if must be.

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[For other information see second page following reading matter]

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DEATHS OF PHYSICIANS IN 1908

During 1908 the deaths of 2,261 physicians in the United States and Canada were noted in *THE JOURNAL*, the equivalent of an annual death rate per thousand of 17.39, based on an estimate of 130,000 practitioners. This rate does not differ materially from those of the previous six years, which were, respectively: 1907, 16.1; 1906, 17.2; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. The age at death varied from 21 to 102 years, the average being 59 years, 6 months and 25 days. The number of years of practice of the decedents varied from the first year of practice to the seventy-sixth, the average being 30 years and 5 months. About 14 per cent. of those who died were members of the American Medical Association. Chief among the death causes were heart disease, violence, pneumonia and cerebral hemorrhage, in the order noted.

Causes of Death.—During the past year 335 deaths were assigned to general diseases; 269 to diseases of the nervous system; 288 to diseases of the circulatory system; 201 to diseases of the respiratory system; 79 to diseases of the digestive system; 109 to diseases of the genitourinary system, and 175 to violence. Among the chief assigned death causes were heart disease, 222; pneumonia, 172; cerebral hemorrhage, 171; accidents, 129; nephritis, 107; senile debility, 79; tuberculosis, 67; malignant disease, 51; typhoid fever, 37; suicide, 34; septicemia, 33; angina pectoris, 36; appendicitis, 25; diabetes, 23; influenza, 15; homicide, 12; gastritis, 11; tetanus, 4, and glanders, 1.

Of the 175 deaths from violence, 126 were due to accident, 34 to suicide and 12 to homicide. Of the accidents, falls caused 22 deaths; poison, 17, and gunshot wounds and railway accidents, each, 12; 10 were drowned; 9 died from burns; 8 from runaways, and 7 from automobile casualties. Of the 34 suicides, 20 were due to gunshot wounds; 6 to poison; 3 to cutting instruments; 2 to asphyxiation, and one each to drowning, fall and strangulation. All of the 12 homicides were due to gunshot wounds, and 4 of these occurred in duels or as the result of feuds.

Ages.—Of the practitioners who died, 87 were between the ages of 21 and 30; 255 between 31 and 40; 310 between 41 and 50; 386 between 51 and 60; 450 between 61 and 70; 405 between 71 and 80; 175 be-

tween 81 and 90; 14 between 91 and 100, and 2 exceeded the century mark. The greatest number of deaths occurred at the age of 66, when 53 were reported, and 58 and 68, at each of which ages 50 deaths were reported.

Years of Practice.—During the first decade of practice, 259 died; during the second, 408; during the third, 467; during the fourth, 429; during the fifth, 345; during the sixth, 254; during the seventh, 54. Three practitioners exceeded 70 years of practice, one attaining 76 years.

Military Service.—During 1908, 353 practitioners died who had seen service in the Civil War, 99 of whom had served in the army of the Confederate states; 15 died who had served in the Spanish-American War; 9 in foreign wars, and 3 in the Mexican War. There were 25 deaths of past or present members of the Medical Corps of the Army; 13 of the Medical Department of the Navy; 11 of the Public Health and Marine-Hospital Service, and one death in the newly established Medical Reserve Corps. The deaths of 15 National Guard surgeons are reported, 5 of whom had attained the rank of surgeon-general.

Medical Positions.—During the year medical colleges lost 109 professors and instructors; hospitals, 250 members of staffs; counties and cities, 122 health officers, and boards of education and school boards, 71 members. There were 44 deaths of coroners, 81 of pension examiners, 93 of railway surgeons, and 26 of members of state boards of health or of medical examination. Of the physicians who died, 15 had served as state senators, 47 as members of the legislature, 24 as mayors, 10 as councilmen, 59 as justices of the peace or in civil offices, 29 as postmasters, and 37 as editors.

Among the more prominent dead of the year are:

Nicholas Senn, master surgeon, pathologist and teacher.

Richard Douglas, Nashville, distinguished surgeon, gynecologist and abdominal surgeon of the south.

Daniel Bennett St. John Roosa, New York City, ophthalmologist.

Thomas Edgar Schumpert, Shreveport, prominent surgeon of Louisiana.

James Coe Culbertson, Cincinnati, former editor of *THE JOURNAL* and prominent in educational work.

Frank Hugh Montgomery, Chicago, specialist on diseases of the skin and venereal diseases.

George Michael Edebohls, New York City, gynecologist and abdominal surgeon.

Charles Harrington, Boston, orator in state medicine, sanitarian, hygienist and administrator of the highest grade.

Frank Lemuel Adams, Oakland, Cal., formerly president of the state society.

Andrew J. McCosh, New York City, prominent general surgeon of the east.

THE ORIGIN OF THE BEAT OF THE HEART AND ITS
CONDUCTION THROUGH THE HEART¹

It seems possible that the two hypotheses known respectively as the myogenic and the neurogenic theory of the rhythmicity of the heart beat may at last coexist on friendly terms. Recent work tends in this direction, as it seems to grant to the neurogenists the control of the heart, and possibly also the origin of the impulse which results in a beat, and to the myogenists the path of conduction of this impulse.

Based originally on the assumption that the conduction of an impulse passing from the atrium to the ventricle accounts for the difference in time between the atrial and ventricular systoles, the myogenic theory was substantiated in 1893 by the younger His.¹ His researches and Retzger's² more complete work later demonstrated the path of conduction of this impulse—a muscle bundle connecting the atrium and ventricle through the atrio-ventricular septum. The production of independent atrial and ventricular contractions by Gaskell³ and by Wooldridge⁴ as early as 1883 by constriction or destruction of the muscle at the atrio-ventricular junction had thrown light on the physiology of this path before its anatomic discovery, and His⁵ in 1895 reproduced the same dissociation of atrial and ventricular contractions simply by destroying the muscle bundle described previously by himself. It remained, as is now well known, for Erlanger⁶ to show that the syncopal attacks and slow pulse of the Adams-Stokes syndrome are due to a similar heart-block—to interruption of the function of this atrio-ventricular bundle of His.

Recent observations of Arthur Keith⁷ of London have shown, in the junction between the great veins and the atrium of the heart, a bundle of muscle fibers which ramify about the atria and are lost in the septum. This is probably a path of conduction, and its existence is evidence in favor of the view that the venous portion of the heart forms the site of origin for the rhythmic impulses. The presence in it of many ganglion cells and nerve fibers suggests that it may be the connecting link between the muscular conduits and the nervous control.

It is interesting that just as Gaskell and Wooldridge drew attention to the physiology of an atrio-ventricular connection before its anatomic description, so this important discovery of Keith's is antedated by Hoffmann's⁸ demonstration of the rhythmicity of contraction of the large veins and his suggestion that they are the probable seat of origin for the heart's action. Still others⁹ have maintained that the venous sinus is the only area which influences the action of the whole heart.

If we add to these epoch-making advances the interesting results obtained by Loeb on ionic influences and the remarkable work of Howell and Duke¹⁰ in showing the coincidence of vagus impulses and the liberation of potassium in the heart wall we begin to realize what a revolution our knowledge of the hitherto inexplicable phenomenon of the heart beat is undergoing, and what a new cardiac pathology is becoming conceivable, especially for the interpretation of the cardiac arrhythmias. The results thus far arrived at will stimulate further study. That the last word concerning the myogenic and neurogenic theories has not yet been said is to be seen from the work of Carlson¹¹ on the heart of certain lower forms; his studies lend important confirmation to the neurogenic doctrine. He finds that the heart of the limulus or king crab, when separated from the nervous ganglia, ceases to beat. He also finds in later work¹² that the automatic action of the limulus heart begins before there is any evidence of nerves supplying it.

THE CLINICAL ASSISTANT IN GENERAL PRACTICE

The loss of the personal element, as exemplified particularly in the system of preceptorship, on which we commented recently,¹ has been deplored as an unfortunate necessity in the changing methods of medical education. While there is a conscious effort on the part of the better schools to obviate this defect by subdivision of the classes, thus bringing about as far as possible an intimate association between teacher and pupil, a new institution which promises to be of even greater value, seems to be evolving from the very cause that brought about the collapse of the older system. The enormous broadening of the field of knowledge and activity which faces the conscientious physician of to-day is making it more and more difficult for one man unaided to do justice to a large number of patients, and thus an increasing number are finding it necessary to employ an assistant. This postcollegiate association of a younger with an older man is in a way taking the place of the older custom. At present this practice is restricted largely to the more progressive and better established physicians, but it could undoubtedly be much more widely utilized with advantage both to the younger man and to the older practitioners, as well as to the public. In his farewell address to the medical students of this country and Canada, Dr. Osler said:

"I wish the custom of taking junior men as partners and assistants would grow on this continent. It has become a necessity; and no man in large general practice can do his work efficiently without skilled help. How incalculably better for the seniors, how beneficial to the patients, how helpful in every way if each one

1. His, W., Jr.: *Arch. u. d. med. Klin. zu Leipzig*, 1893, p. 14.
2. Retzger: *Arch. f. u. Entwicklungsgesch.*, Anat. Abth., 1904, p. 1.
3. Gaskell: *Jour. Physiol.*, 1883, iv, 43.
4. Wooldridge: *Arch. f. Physiol.*, 1883, p. 552.
5. His, W., Jr.: *Centralbl. f. Physiol.*, 1895, ix, 469.
6. Erlanger, J.: *Jour. Exper. Med.*, 1906; *Centralbl. f. Physiol.*, 1905, xix, 4; *Am. Jour. Physiol.*, 1906, xv, 153.
7. Gibson, G. A.: *Johns Hopkins Hosp. Bull.*, 1908, xix.
8. Hoffmann, A.: *Med. Klinik, Berl.*, 1906, ii, 1113.
9. McWilliams: *Jour. Physiol.*, 1888, ix, 167. Adam: *Arch. f. d. ges. Physiol. (Pflüger's)*, 1906, cxi, 607.

10. Howell, W. H., and Duke: *Johns Hopkins Hosp. Bull.*, 1908, xix, 51.
11. Carlson, A. J.: *Am. Jour. Physiol.*, 1905-6, xx, 99-120. See also critical review by Vaguez, H.: *Arch. d. mal. d. coeur*, Paris, 1908, i, 574-581.
12. *Am. Jour. Physiol.*, February, 1908, xxi, 1.
1. Dec. 12, 1908, ii, 2063.

of you, for the first five or ten years, was associated with an older practitioner, doing his night work, his laboratory work, his chores of all sorts!"

The advantage to a busy physician of the services of a younger man to do this sort of work for him is equaled only by the value of such an experience to the assistant. Undoubtedly, each man would do better work under the eye of the other, and the breadth of view afforded by the comparison of ideas and experience, and by the leisure to digest and systematize the never-ending clinical observations, etc., would be found to add materially to the pleasure of the work and to the efficiency of the workers. Each patient would probably receive more thorough consideration. That the public is quick to appreciate thoroughness need hardly be said; and while there are many patients who can not afford to pay adequately for the time and labor involved, if they are accepted as patients, surely anything less than thoroughness is unfair—and poor "business" beside.

There are hosts of young men capable of filling the position of assistant who would be glad of a chance to do such work, especially those who have not obtained a hospital position after graduation. On the other hand, there are undoubtedly many older physicians who would find great relief in help of this kind, did they but realize it. Force of circumstances is bringing about an ever-widening realization of the necessity of such cooperation.

A "FASTING CURE" FOR SYPHILIS

A journal called *Eternal Progress*, devoted apparently to the advancement of the mental healing cult, gives in its May issue a remarkably striking instance of the snake that lies hidden in the rank herbage of quackery. A correspondent asks the following question: "Some years ago I contracted syphilis and, as I am about to marry, I would like to find a remedy. Would dieting for thirty days produce a cure?" It seems incredible that any sane person, having intelligence to write decent English, should be capable of delivering himself of such a terrible doctrine as is contained in the following answer: "The best remedy for any venereal or blood disease is fasting. A fourteen-day fast will cure most cases. Mild cases could be cured in a fast of eight or ten days,"—and much more, extolling the virtues of fasting as a cure-all. While we do not, of course, ascribe to the writer of the answer any criminal intent, there is a degree of culpable ignorance which amounts to criminality, and that point is surely passed in this pernicious advice. It is appalling to think of the children that may be born with envenomed constitutions should the inquirer act on such deadly advice. The indifference of ignorance is hard enough to combat; but what shall we say of this cruel betrayal of one who, conscious of his condition, has conscience enough to desire to prevent the transmission of his taint to his innocent wife and offspring? For the ascertainment is absolutely false in each of its three clauses.

PELLAGRA

In a late issue of the *New Orleans Medical and Surgical Journal* Dr. George H. Searcy¹ states that since he reported on pellagra to the Alabama State Medical Association last year he has visited nearly all the southern states and many of the southern state insane hospitals and is convinced that pellagra prevails in all parts of the south. Physicians tell him that it has only been within the last decade that they have observed any such disease, and he himself believes that it must be on the increase. So far as we are aware there have been no reports of it as yet from any of the northern states, even those where maize is extensively cultivated and used for food and where it might be looked for with as much a *priori* probability of finding it as farther south. There is opportunity here for interesting medical research which we feel sure will be utilized by individual physicians and by the state authorities as well as by the U. S. Public Health and Marine-Hospital Service. Pellagra and hookworm disease are evidently of more economic importance than was at first thought probable.

Medical News

ALABAMA

Health Week in Tuskegee.—Health Week was held in Tuskegee during the week beginning December 13. During the week the traveling exhibit of the National Association for the Study and Prevention of Tuberculosis was open, and a program of illustrated addresses and platform meetings and conferences was held under the direction of the advisory board, which included representative colored men and women from all parts of the county.

Personal.—Drs. John Douglass and J. Frank Hogan, Birmingham, have been elected members of the board of control of Hillman Hospital.—Dr. Edward K. Moon, city physician of Anniston, has resigned.—Dr. Douglas G. Campbell, Mobile, has been elected physician of Mobile County.—Dr. Harry T. Day, Montgomery, has been elected physician of Montgomery County.—Dr. V. H. Williams, Calera, has been elected health officer of Shelby County.

Society Meetings.—At the annual meeting of Mobile County Medical Society, held in Mobile, December 17, Dr. Percy J. Howard was elected president; Dr. William R. Jackson, vice-president; Dr. Stephen F. Hale, secretary; Dr. Seale Harris, treasurer; Dr. Charles A. Mohr, librarian; and Dr. Douglas G. Campbell, censor, all of Mobile.—Montgomery County Medical Society, at its annual meeting, held in Montgomery, December 12, elected Dr. James N. Baker, president; Dr. Wilbur A. Sellers, vice-president; Dr. Paul S. Mertins, secretary-treasurer; and Dr. Forney C. Stevenson, censor, all of Montgomery.

CALIFORNIA

Tag Day in San Francisco.—Receipts from "Tag Day" in San Francisco netted \$28,101.52 to the fund for the Children's Hospital.

Personal.—Dr. Clarence S. Six, Stockton, has been elected health officer of San Joaquin county, vice Dr. J. Porterfield Hull, term expired.—Dr. George K. Herzog, San Francisco, will soon leave for study in Germany.

Want Anti-plague Work to Continue.—At a conference held December 10, in San Francisco, it was agreed that a formal request should be made to the Surgeon General of the P. H. and M. H. Service, to continue for an indefinite period the supervision of the sanitary work in the bay section, the request being signed by the governor, the members of the State Board of Health, the mayor, the local board of health of San Francisco, and the hospital and health committee of the board of supervisors.

Elections.—At the annual meeting of the Southern California Medical Society, held in Santa Ana, December 2 and

1. December, 1908, *ix*, 413.

3, the following officers were elected: President, Dr. Fred R. Burnham, San Diego; vice-presidents, Drs. Charles D. Ball, Santa Ana, and Joseph M. Holden, Long Beach, and secretary-treasurer, Dr. Joseph M. King, Los Angeles.—At the annual meeting of the Southern California Public Health Association, held in Santa Ana, December 1, Dr. Charles D. Ball, Santa Ana, was elected president; Dr. W. Harriman Jones, Long Beach, vice-president, and Dr. William W. Roblee, Riverside, secretary-treasurer.—At the annual meeting of Yolo County Society for Medical Improvement, held November 24, Dr. Thomas W. Gallion, Davisville, was reelected president; and Dr. Frances L. Newton, Woodland, secretary.—Butte County Medical Society, at its annual meeting, held in Chico, December 8, elected the following officers: President, Dr. Newton T. Enloe, Chico; vice-president, Dr. Lewis L. Thompson, Gridley; secretary-treasurer, Dr. Ella F. Gatchell, Chico; censors, Drs. Lewis O. Thompson, Gridley, and Perry F. Bullinger, Chico, and delegate to the state society, Dr. Dan H. Moulton, Chico.—At the annual meeting of San Bernardino County Medical Society, held in Redlands, December 9, the following officers were elected: Dr. William P. Burke, Highland, president; Drs. Hoell Tyler, and Thomas M. Blythe, Redlands, vice-presidents; Dr. Garle G. Moseley, Redlands, secretary; Dr. William A. Taktavall, Redlands, treasurer, and Dr. D. Charles Strong, San Bernardino, delegate to the state society.

COLORADO

Postgraduate Club.—The Postgraduate Club of Denver and Gross Medical School has instituted a course of study as outlined by the American Medical Association.

Advises Against Skyscrapers.—The Denver County Medical Society has advised the city council against the erection of buildings more than eight stories in height on the ground that it would be especially insanitary to exclude more air and sunlight from the streets of a city which has so large a population of tuberculous persons.

Personal.—Dr. Edward C. Hill has been appointed chemist in charge of the state station of the United States Department of Agriculture recently opened in Denver.—Dr. Isaac B. Perkins has been elected a director and Dr. Eleanor M. Lawney, examiner of the Denver Hospital Saturday and Sunday Association. The association netted \$4,600 as a result of its tag-day collection in November.

State Board Needs.—The secretary of the State Board of Health, in his biennial report, asks an appropriation of \$50,000 for the next two years; the appointment of two sanitary inspectors to deliver lectures over the state on the prevention of disease; the establishment of a laboratory of hygiene in the capitol building, the appointment of two more food inspectors, an extra clerk, and the enactment by the next legislature of a law compelling physicians to report cases of tuberculosis to the board.

DISTRICT OF COLUMBIA

Personal.—Dr. J. J. Kinyoun has been appointed pathologist and Dr. Truman Abbe, radiologist on the staff of the Tuberculosis Hospital.—Dr. J. Ford Thompson has returned from abroad.

Abortionist Goes to Prison.—Edward Leon Thompson, known as "Dr. Leon," said to have been convicted recently of performing a criminal operation, was taken to the Federal prison at Atlanta, Ga., December 2, to serve out his sentence.

Antituberculosis Association Organized.—The Association for the Prevention of Tuberculosis in the District of Columbia was incorporated November 6, ex-Surgeon General George M. Sternberg, U. S. Army, being elected temporary president, and Brigadier General William H. Forwood, U. S. Army, retired, treasurer.

To Prevent Food Adulteration.—The legal officers of the Department of Agriculture have decided that the department has the right to punish hotel, restaurant and boarding-house keepers who supply adulterated food to consumers. The matter is to be taken up by the health department and measures will be instituted for the prosecution of the violators of the law. The crusade against insanitary restaurants has resulted in the arrest of 117 proprietors, all of whom have been fined or put under bonds.

ILLINOIS

Bids for Building Rejected.—All of the proposals for the erection of the new Cook County Infirmary buildings at Oak Forest were rejected December 11 by the special committee. The amount at the disposal of the members for the erection

of the new infirmary buildings and the tuberculosis hospital on the county hospital grounds is \$2,000,000, while the lowest bid received for the construction of the infirmary alone was \$1,898,358.

State Institutions Under Quarantine.—The Illinois State School for the Deaf, Jacksonville, was put under quarantine by the city and state health authorities December 15, on account of an epidemic of scarlet fever, of which 110 cases are said to exist.—Quarantine has been established at the Illinois Eastern Hospital for the Insane, Hospital, as a result of the discovery of five cases of diphtheria in the institution, three among patients and two among nurses.

Personal.—Dr. James W. Pettit, president of the State Medical Society, addressed St. Clair County Medical Society at East St. Louis, December 10, on "Medical Organization."—Drs. James W. Pettit, Ottawa, and James A. Egan, Springfield, have been appointed by the governor as members of the States Commission to Investigate Occupational Diseases.—At the annual meeting of the Canton Physicians' Club, December 14, an ebony gold-headed cane was presented to Dr. James E. Sutton, the oldest practitioner of Canton, the presentation speech being made by the president of the club, Dr. W. E. Shallenberger.

CHICAGO

Communicable Diseases.—During the week ended December 20, 644 cases of communicable diseases were reported to the health department, or 100 less than for the preceding week.

Personal.—Dr. Archibald Church has resigned as editor of the *Chicago Medical Recorder*.—Dr. Juliet N. Stevens has returned from a trip to England and Scotland.—Dr. Anthony Biankini has had conferred on him by the Emperor of Austria the order of the Iron Crown, third class.—Dr. William A. Fisher, who has been very ill at his home, is reported to be convalescent.—Drs. Ludwig Hektoen, George W. Webster, and Alice Hamilton have been appointed members of the State Commission to Investigate Occupational Diseases.

Chicago's Health.—The death rate for the week ended December 26, reached the phenomenally low rate of 11.59 per 1,000 per annum. There were 98 fewer deaths than in the preceding week and 87 fewer than in the corresponding week of last year. As compared with last year, there were 34 fewer deaths from pneumonia, 18 fewer from nervous diseases, 12 fewer from bronchitis, 9 fewer from diphtheria, 5 fewer from nephritis, 4 fewer from influenza, 3 fewer from typhoid and whooping cough, and 2 fewer from scarlet fever. Among the chief death causes were pneumonia, 69; tuberculosis, 48; heart diseases, 40; violence (including suicide), 37; acute intestinal diseases, 33; nephritis, 31; and cancer, 29. Diphtheria and scarlet fever each caused 14 deaths; typhoid fever, 4; measles, 3, and whooping cough and influenza, each 2.

INDIANA

Personal.—Dr. William R. Davidson has associated himself with Drs. Edwin Walker and James Y. Welborn in the management of the Evansville Sanitarium.—Dr. William A. Justice, Greenfield, has been appointed physician of Hancock County.—Dr. Francis M. Ihrig, Goshen, has been re-elected secretary of the board of health of Elkhart County.—Dr. James E. King, Richmond, has been re-elected secretary of the Wayne County Board of Health.—Dr. Oliver M. Davis, Marion, has been appointed health officer of Grant County.—Dr. Charles B. Kern, Lafayette, has been re-appointed physician of Tippecanoe County.—Dr. Alexander G. Schlieker, East Chicago, has been appointed district surgeon for the C. L. S. & S. B. Railroad.—Dr. Marion Glenn, Vincennes, secretary of the Knox County Board of Health, has resigned.

NEBRASKA

Higher Requirements at State University.—The entrance requirements to the College of Medicine of the State University have been increased to two years of work in the liberal arts college or its equivalent.

Board Sustained.—In the case of J. T. Mathews, Omaha, charged with having performed an illegal operation, whose license to practice medicine was revoked by the State Board of Health, and who appealed to the supreme court, decision has been given in favor of the board and the revocation of Mathew's certificate has thus been made permanent. This is a notable victory for the medical profession as the decision will form a precedent from which appeal is not likely to be taken.

NEW YORK

Personal.—Dr. Pierce J. Candee, Buffalo, was painfully injured recently by a collision between his automobile and an electric car.—Dr. John G. Curtis, professor of physiology in the College of Physicians and Surgeons, New York City, since 1875, and Dr. T. Mitchell Prudden, professor of pathology since 1891, will retire June 20.

Smoke Nuisances.—Commissioner Eugene H. Porter of the State Health Department, after investigation, has reported to the governor that certain manufacturing plants near Bayonne, N. J., are a public nuisance, and that the smoke and fumes emitted from them are detrimental to health, destroy vegetation and retard the recovery of hospital patients in many parts of Staten Island.

Foot-and-Mouth Disease.—The Commissioner of the State Department of Agriculture states that, so far as known, every animal afflicted with foot-and-mouth disease has been killed and buried. The disease has existed in 49 localities in 5 counties of the state. The efforts of the department are now being directed to a thorough disinfection of all places where the disease is known to have existed.

Report of Tuberculosis Hospital.—The State Hospital for the Treatment of Incipient Tuberculosis, Raybrook, reports that 477 patients have been treated in the institution during the year. There are in the hospital at present 163 patients, of whom 80 are males. The cost to the state is \$9.47 a week per capita. During the year only three patients died in the institution, and 301 were discharged, most of whom had been benefited and many of whom had been cured by the treatment.

Regulations Governing the Practice of Optometry.—The New York State Board of Examiners in Optometry has made public the rules which became effective January 1 governing the practice of optometry. No one may examine eyes for glasses without a certificate from this board. An investigation is now in progress to determine the qualifications of a large number of those who have applied for certificates. Dispensing opticians, who merely fill prescriptions for glasses, and store-keepers who sell glasses to customers on the latter's selection are not required to have certificates.

Dr. Trudeau Honored.—A dinner was given at one of the hotels in Saranac Lake, December 19, at which fifteen men were present, and at which Dr. Baldwin presented Dr. Trudeau with two volumes of reprints on the "Studies in Tuberculosis" by his pupils in commemoration of his sixtieth birthday, Oct. 5, 1908, sumptuously bound in crushed red levant decorated with the head of Æsculapius, pine trees and fleur de lys. Dr. Walter V. James, New York City, presented Dr. Trudeau with a number of letters from personal friends congratulating him on the occasion of his sixtieth birthday. This celebration had been postponed on account of the Congress on Tuberculosis, and for other causes.

New York City.

Want More Experienced Ambulance Surgeons.—Coroner Harburg has prepared a bill for introduction in the next legislature prohibiting a hospital interne with less than six months' experience from acting as ambulance surgeon. Coroner Harburg believes the passage of such a bill will lessen the number of mistaken diagnoses and the number of deaths.

Poison in Christmas Candy.—The owner of a candy store on the upper East Side on December 20, was convicted of selling impure candy. The inspector of the health department who appeared against the defendant said that he had bought some of the candy and that an analysis showed that it contained sulphurous acid and coal tar dye. The dealer was fined \$25.

Herter Lectures.—Dr. J. B. Leathes of the Lister Institute, London, will deliver the six Herter Lectures on the subject of "The Metabolism of the Non-Nitrogenous Substances in the Animal Body" in the Carnegie Laboratory of the University and Bellevue Hospital Medical College, beginning January 4, at 4 p. m., and continue daily throughout the week. Those who are interested are invited to be present at the lectures.

New Beth Israel Hospital Planned.—The board of directors of the Beth Israel Hospital has directed the building committee to select a block on the East Side between Houston and Twenty-third streets as a site for new hospital buildings. The hospital association has real estate worth \$50,000 and a building fund of \$100,000 with promises of generous subscriptions for a large new institution, as the present one is entirely inadequate.

Cause of Cancer.—The investigation of the cause of cancer and its possible prevention and cure has been begun in the College of Physicians and Surgeons under the direction of a committee composed of Drs. Samuel W. Lambert, dean, William J. Gies, professor of physiologic chemistry; Dr. Philip H. Hiss, Jr., professor of bacteriology; Francis C. Wood, professor of clinical pathology; Gary N. Calkins, professor of protozoology, and Eugene H. Pool, instructor in surgery.

Sanitary School for Columbia.—Twelve experts in hygiene and sanitary science are at work on a plan for the establishment of a school of preventive medicine in connection with Columbia University. It is proposed to train men for the positions as health officers and sanitary inspectors, so that even small towns may be properly safeguarded against conditions that foster and breed disease. The medical members of the committee appointed by President Butler are Drs. Norman E. Ditman, Samuel W. Lambert, Philip H. Hiss and M. Allen Starr. The proposed school will seek to prevent tuberculosis, blindness and alcoholism. A careful study of meat and foodstuffs, dairies and the milk supply will be features of the course.

Brooklyn's War on Tuberculosis.—The Brooklyn Committee for the Prevention of Tuberculosis has been receiving applications from all parts of the country for literature, and, while physicians have been generous in their offers of free lectures, the demand has been so great that applications are refused almost daily. The committee is now furnishing more than one hundred diets and assigns a visiting nurse to patients who are confined to bed. There are 6,000 cases of tuberculosis registered in the borough and one dispensary, St. Peter's Hospital and the home for consumptives at Kingston avenue and St. John's place, are the only institutions where destitute consumptives are admitted. The committee has secured the right to use the backs of transfers in its campaign of education. The work of the committee is supported entirely by voluntary contribution.

Charity Organization Society Work.—The twenty-sixth annual report of the Charity Organization Society of New York City has just been made public. The report shows that the total number of cases in charge of the Districts and Investigation Bureau as 6,716 for the year 1906-1907, and 8,621 for the year 1907-1908, an increase of 28 per cent. Owing to the financial depression, the work of the society was very much increased in all departments, excepting that there were fewer consumptives requiring care in their homes; this was due to greater intelligence in regard to the disease and more accommodations in institutions for consumptives. The society disbursed more than \$200,000 during the year and is only about \$10,000 in arrears. In addition to the educational work of the society in regard to tuberculosis, it is working for further amendment of the tenement-house law, reforms in the children's courts and in criminal courts.

The Tuberculosis Exhibit.—On December 26, Italian Day, at the Tuberculosis Exhibit, Dr. Antonio Stella presided and there were addresses by Count Reybaudi Massiglia, Consul General of Italy, Hon. Prospero de Nobili, member of the Italian Parliament, and a number of other prominent Italians. On January 2 there is a mass meeting of street railway employees and on the following day a general meeting will be held under the auspices of the Committee on Congestion of Population. Nathan Straus in his address at the Tuberculosis Exhibit urged the enactment of a law against bringing other tuberculous cattle into the state. He said that, according to the reports of Prof. Veranus A. Moore, an exhaustive study of the records of actual tests of 626 dairy herds in the state showed that 386 herds, or 61.7 per cent., were infected with tuberculosis. He also thought we ought to have a law preventing the so-called "commercially pasteurized" milk from masquerading as pasteurized milk, for it was not thoroughly pasteurized, but merely warmed sufficiently to prevent souring.

Testing New Medical Law.—Under the new medical law, passed in 1907 and the first one instituted by the County Medical Society in the 102 years of its existence, six practitioners were put on trial on December 9 charged with various felonies and misdemeanors. Proceedings were brought by the society for the revocation of the licenses of these men. The physicians on trial in these disbarment proceedings are Dr. Moses Jackson, ex-coroner, said to have been found guilty of bribery; Drs. Edward E. Conrad and Francis Gray Blinn, both of whom were sentenced to from one to two years in State prison for attempted abortion; Dr. Frank J. Dudenhausen, found guilty of practising under an assumed name; Dr.

Robert Ormsby who had been fined for selling drugs for criminal purposes, and Dr. Rudolf Mielke who had been convicted of sending indecent literature through the mails. The committee will probably not make its findings known until next March. The accused may have their license revoked, their registrations annulled or may be suspended from practice. If their licenses should be revoked they may apply for renewal after a year. The society has other applications for revocation of licenses in preparation.

NORTH CAROLINA

Personal.—Dr. Paul P. Lane, Wilson, has been appointed resident physician at the James Walker Memorial Hospital, Wilmington.—Dr. Baxter S. Moore, Charlotte, who was operated on for appendicitis at St. Peter's Hospital, Charlotte, December 7, is doing well.—Dr. William H. Whitehead, Rocky Mount, formerly a member of the State Board of Health and State Board of Medical Examiners, has been obliged to retire from practice on account of ill health.—Dr. Samuel D. Booth, Oxford, is reported to be seriously ill at his home.

Decision Reversed on Appeal.—In the case of Dr. S. Westray Battle, Asheville, a member of the State Board of Health, cited to appear in the police court of Asheville to tell "what he knew about the illegal sale of liquor in the city of Asheville," and who, when he responded to the summons of the court, demanded the name of person or persons responsible for the summons, which information was refused him, whereupon Dr. Battle declined to be sworn, and was fined \$25, the higher court has decided in favor of Dr. Battle. In his decision, the judge of the higher court stated, "the courts of this state will not allow any back-door or gumshoe methods."

LOUISIANA

Election.—At the annual meeting of Shreveport Medical Association, held December 2, Dr. I. M. Galloway was elected president; Dr. Joseph J. Frater, Shreveport, vice-president; Dr. Arthur A. Herold, Shreveport, secretary; and Dr. John A. Hendrick, Eastpoint, treasurer.

Physician Fined.—In the case of Dr. L. J. Breaux, Lafayette, charged with prescribing whisky and other intoxicating liquors on Sunday in violation of law, the defendant is said to have been found guilty and sentenced to pay a fine of \$100 and to be imprisoned for thirty days. He immediately gave notice of appeal.

Memorial Dedicated.—The Delgado Memorial Building of the Charity Hospital, New Orleans, was formally dedicated December 19. Dr. Ernest S. Lewis presided over the ceremonies, and in his address reviewed the history of Charity Hospital with special reference to the munificence of Isaac Delgado and his deceased wife. Mayor Behrman paid an eloquent tribute to the munificence of Mr. Delgado. Dr. L. G. LeBeuf in his address, referred to the eminence of Dr. Lewis and Dr. Matas, and spoke with pride of the record of Charity Hospital. Dr. Rudolph Matas then read a eulogy on the life of Mr. and Mrs. Delgado, after which he delivered a brilliant address in which he commented on the blessings conferred on humanity in the legacy of the rich. He bore a message of thanks from Mr. Delgado to Charity Hospital, the corporation, and the members of the building committee for their untiring work and zeal, to the sisters, nurses, and attachés, for their interest in the institution, and to the architects for their courtesy. Dr. Matas further said that the man who gives as Mr. Delgado had given was both a statesman and philanthropist, and his deeds would live ages after his death, as a benefaction to mankind. The new building has cost approximately \$200,000, is five stories in height, strictly fireproof, modern in equipment, and is to be devoted to surgical and gynecological cases.

PENNSYLVANIA

Philadelphia

Clinic Purchases Property.—The Philadelphia Clinic for Home Treatment of Chest and Throat Diseases has recently purchased the property 2114 Lombard street and has made application to the State Board of Charities for an appropriation to adapt the building for the clinic's work. Until these alterations are completed the clinics will continue to be held at 519 South Fifteenth street, Mondays, Wednesdays and Fridays, at 3 p. m. Dr. Frank Read is president of the board of trustees and Dr. Thomas J. Mays, medical director.

Health Report.—The total number of deaths reported to the Health Bureau for the week ended December 26, was 474, a decrease of 10 from the previous week and a decrease of 127 from the corresponding week of last year. The prin-

cipal causes of death were: Typhoid fever, 3; scarlet fever, 2; pertussis, 3; diphtheria, 13; consumption, 45; cancer, 21; apoplexy, 17; heart disease, 48; arteriosclerosis, 13; acute respiratory diseases, 94; enteritis, 13; nephritis, 48; congenital debility, 7; premature birth, 9; senility, 6; suicide, 2; accidents, 19. There were 164 cases of contagious disease reported, with 18 deaths, as compared with 208 cases and 24 deaths reported in the preceding week.

GENERAL NEWS AND COMMENT

Honors to Finlay.—The French government has conferred the decoration of the Legion of Honor on Carlos J. Finlay of Havana, Cuba, in token of appreciation for his discoveries in regard to the transmission of infection by mosquitoes. The presentation of the decoration was celebrated, at the same time as his seventy-fifth birthday, at a special meeting of local and national notables in the assembly hall of the Academy of Sciences, Havana. At the same time a decree of the provisional governor was read setting forth the importance to the Cuban people of the professional services of Dr. Finlay, especially in connection with the discovery of the means of transmitting yellow fever. This decree provides for the retirement of Dr. Finlay at his own request and because of his advanced age, from the position of chief sanitary officer, and for his appointment as honorary president of the National Board of Sanitation and Charities, which office is created for his life time and will terminate with his death. The salary of this position is to be \$2,500 per year. The decree also provides for the publication by the government of a volume of selections from the writings of Dr. Finlay, not to exceed 500 pages nor 1,000 copies.

FOREIGN

Cajal Elected to the Spanish Senate.—Ramon y Cajal has been elected a senator to fill the vacancy left by the death of San Martin.

War Against Tuberculosis in Spain.—The Spanish government is transforming three old lazarettos into asylums for tuberculous children of the poor. Their location renders them peculiarly well adapted for sanatoria.

The Polyclinic in Buenos Aires.—The *Semana Medica*, November 19, contains an illustration of the souvenir plaque and parchment with numerous autographs presented to Dr. E. Canton, dean of the faculty of medicine, when his efforts to found the polyclinic were crowned with success by an official decree establishing it and appropriating funds for its maintenance.

Retirement of Haeckel.—Prof. E. Haeckel retires this year from the chair of zoology at Jena in order to devote his entire time to completing the Phylogenetic Museum there which he founded and presented to the university at the recent celebration of its 350th anniversary. He has been professor of zoology at Jena since 1865, and is now 74. After a brief experience as general practitioner at Berlin, he turned his attention entirely to the natural sciences. Less than ten years ago he published an extensive work, "World Problems," reviewing the results of a lifetime of research and presenting his views on the problems of the universe.

Italian Congress for History of Medicine.—An Italian society to foster the study of the history of medicine and other sciences was organized last year, and it held its first congress at Faenza in October. A number of interesting data recently learned in regard to the physicians and anatomists of the fifteenth, sixteenth and seventeenth centuries were announced, among them being the discovery of the tomb of B. Eustachio, of Eustachian tube fame. The tomb is in the Church of the Twelve Apostles at Rome, and has hitherto been ascribed to the Buonarrotti family and has been pointed out to visitors as the tomb of Michelangelo. A work by Morgagni was presented which showed his knowledge of valvular disease of the heart, also MS by Malpighi, and the report of the first case of syphilis—Morbus gallicus—observed in Italy, transcribed in a diary of the year 1400, with comments on the arrival of the French army under Charles VIII and its accompanying 1700 prostitutes. In these centuries Italy was distinguished by the absence of restrictions on postmortem work. The congress will meet at Venice in 1909 and at Rome the following year. The latter city has the only chair in Italy for study of the history of medicine.

Prizes Distributed by French Academy of Medicine.—As usual, a number of cash prizes were distributed at the annual meeting of the Paris Academy in December. This year forty-one prizes, amounting to about \$14,000, were distributed, all but

five going to French physicians. These exceptions were a prize of \$200 to F. W. Pavy of London for his research on diabetes; \$160 to Vladoff of Bulgaria for his work "Homicide in Mental Pathology"; \$160 to Remlinger of Constantinople for his research on rabies, and a smaller prize to Lesage of Buenos Aires for experimental research on maté (Paraguay tea), and to Ioteyko of Brussels. No works were received in competition for four of the prizes, representing a total of over \$1,000. The subjects thus ignored were: "Treatment of Mental Affections"; "Detachment of the Placenta During the Last Two Months of Pregnancy or in Labor"; "Melancholia," and "Diphtheria." Three prizes were not awarded, as no worthy articles had been presented on the "Relation Between Infectious Diseases and Neoplasms," on "Medical Statistics" and on "Hernia or Asthma." Again, the great Audiffred prize was offered for a sovereign remedy for prevention or cure of tuberculosis; this would insure an annual income of \$4,800. Also the Guzman prize for effectual treatment of organic heart disease; this insures an income of \$260. Needless to say these prizes are still open to competition. The prize for the best work on "Circulation of the Blood" was given to Parisot for his experimental research on "Arterial Pressure and the Ductless Glands." The surgery prize of \$1,000 was awarded to Monprofit for his achievements in surgery of the stomach. The prize in obstetrics was given to Couvelaire for his work on "Hemorrhage in the Medulla and Cord Following Application of Forceps." THE JOURNAL referred to the principal prizes offered, open to international competition, in the issue for Jan. 14, 1905, p. 138, and our French exchanges of the latter part of December always contain the full details for the following two years.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 15, 1908.

Serious Condition of the London Milk Supply

The London County Council recently appointed a veterinary inspector for the purpose of inspecting the cows and farms outside London which supply milk to the metropolis. His first report is very serious. Samples of milk were taken at the various railways, and the examination of 92 of the 204 taken has been completed at the Lister Institute, with the result that 22 have been found tuberculous.

Expedition of the Liverpool School of Tropical Medicine to Jamaica

The twenty-first expedition of the Liverpool School of Tropical Medicine has left Bristol for Jamaica. It consists of Mr. R. Newstead and Dr. W. T. Prout, late principal medical officer of Sierra Leone. The expedition will be later joined by Dr. A. H. Hanley, late principal medical officer of Southern Nigeria. The objects of the expedition are both medical and entomologic. Dr. Prout and Dr. Hanley will investigate: 1, The prevalence of malaria in Jamaica; 2, the prevalence of filaria in Jamaica; 3, measure for the prevention of mosquito-borne diseases; 4, the so-called "vomiting sickness" of children. Mr. Newstead will investigate: 1. The bionomics of ticks and advise methods of control; 2, the scale insects which are threatening the citrus and coconut cultivation; 3, make a study of the biting insects and ticks of the island for the use of students of the Liverpool School of Tropical Medicine.

Health of the Navy

A very satisfactory report on the health of the navy in 1907 has just been issued. The total force dealt with amounts to 108,740 men, and the total number of cases of disease and injury was 75,351, which is in the ratio of 69.2 per cent., a decrease on 8.5 on the average of the last five years. The average loss of service per man from sickness was 10.46 days, a decrease of 1.29 on the average of the last five years. The decrease in the cases of Malta fever is remarkable and bears striking testimony to the decline of the disease since goat's milk was discovered to be the source of infection. The case ratio has fallen from an average of 3.47 in the last five years to 0.26. Yellow fever appeared in the fleet for the first time since 1904. Seven cases are reported from North America and the West Indies, of which three proved fatal. Malaria fever is on the decline; the case ratio has fallen from 0.67 per cent. to 0.341. This is partly due to the withdrawal of ships from malarial districts and partly to the use of mosquito curtains and quinin as a prophylactic. Nineteen deaths from suicide are reported—a slight increase on the average.

The Doctor and the Light Cure Institute

The difficulty of a doctor working in a professional manner in a commercial institution in the treatment of disease is shown by the case of Dr. A. E. Neale, who sued the Baritsu Light Cure institute for breach of agreement. In entering into the service of the institute every precaution was taken that his work should be carried on strictly ethical lines. His agreement was submitted to the British Medical Association which inserted certain stipulations. As medical superintendent of the institute the doctor was to have entire control of the treatment, he was to be responsible for the admission of patients and no advertisements were to be issued without his knowledge. In spite of this, during his absence on a holiday advertisements of the usual character undertaking to cure sciatica, lumbago, sprains, gout, rheumatism, neuralgia, eczema, falling of hair, etc., backed by testimonials were scattered broadcast. Evidence was given by Dr. Bateman, general secretary of the Medical Defence Union, that the advertisements were of such a character that if they had been issued with the physician's knowledge it would have led to his appearance before the general medical council, with the probability of the removal of his name from the register. Responsibility for their issue was admitted by Mr. Barton-Wright, managing director of the institute. He also admitted that his remuneration depended on the dividends earned and that finding the receipts falling off he had issued the pamphlet at his own expense. The defendants counter-claimed for alleged negligence and incompetence of the physician in the treatment of patients. The jury gave a verdict in Dr. Neale's favor, with \$3,000 damages.

The Central Medical Council and Unqualified Practice

The freedom with which irregular practitioners of all sorts—quacks and nostrum vendors—are permitted to defraud the public has long constituted a scandal. As stated in previous letters, there are some signs that our authorities are waking up and will place some check on these frauds. In his presidential address to the General Medical Council (the body in Great Britain which is appointed by the government to regulate medical education and to exercise disciplinary powers over the profession), Sir Donald MacAllister reported that by means of the friendly assistance of the foreign and colonial offices the council had obtained a large mass of authoritative information respecting the laws regulating the practice of medicine and the restrictions imposed on unqualified practitioners throughout the empire and in foreign countries. This information, which has reached the council in various forms and in numerous languages, has been analyzed and digested by the registrar and his staff for the use of the committee for the prevention of unqualified practice. When this has served the committee's purposes it will be published. No publication of the kind in which the laws of the civilized world on the subject of unqualified practice are surveyed has hitherto been available.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 19, 1908.

Adulteration of Foodstuffs

Out of 1,755 analyses made by the municipal laboratory during October, 1,404 samples were of good quality, while 351 were adulterated or of bad quality. The adulterated or inferior foods make up 20 per cent. of the food consumed in Paris. Out of 505 samples of milk analyzed, 83, or 16.4 per cent., were adulterated. Out of 310 wines analyzed, 47, or 15.1 per cent., were adulterated. All these analyses were made on samples selected at random; they therefore represent the average. Analyses made after seizures make a much worse showing. During October, in consequence of 105 police seizures, 103 violations of the ordinances were declared.

Adulteration of Drugs

A few days ago it was legally decided that the law of 1905 in regard to adulteration of foodstuffs applied also to pharmacists. For having fraudulently substituted, in filling a prescription, a low-priced for a high-priced substance, a pharmacist was sentenced to a month in prison (*avec sursis*), a fine of 500 francs (about \$100) and four insertions of the sentence in the papers. The decision declares that there is no reason why pharmacists should be exempted from the operation of the law on frauds. The syndicate of pharmacists, which was the civil party to the suit received 200 francs (about \$40) as damages.

Another question is whether, under this law, the use of a non-toxic antiseptic or preservative substance, in quantities

too minute to be harmful, constitutes adulteration. A sausage-maker and a manufacturer of chemical products were prosecuted recently at Saint-Nazaire, the one for having sold, the other for having used, borax for the preservation of meats. The butcher admitted having used a powder which the chemist had told him was a harmless preservative. The lower court acquitted the defendants, and the appellate court of Rennes has confirmed the decision, on the ground that the law of 1905 presupposes fraudulent intent, which was lacking in this instance.

A New Surgical Review

The number of specialized periodicals is constantly increasing. Thus, besides the *Revue de chirurgie*, now about to enter on its twenty-ninth year, which was long the only review devoted to general surgery, the *Archives générales de chirurgie*, was founded two years ago under the direction of Professors Lannelongue and Le Dentu, and the monthly *Journal de chirurgie*, in April, 1908. Still more recently has appeared the *Lyon chirurgical*, under the direction of almost all the distinguished surgeons of Lyons, which will present the works of the Lyons school. The first number contains original articles by Albertin on cold tubal abscesses, by Carrel on Crile's direct transfusion of blood, and by Cotte on the technic of subserous cholecystectomy, a critical review on traumatism of the wrist, a report of the proceedings of the International Congress at Brussels, and numerous abstracts.

Personal News

Dr. Quénu, professor of operative medicine in the Paris Medical School, has been chosen, at his own request, professor of clinical surgery in the same school. Dr. Letulle, *agrégé* in the Paris Medical School and physician at the Boucicaut Hospital, has been elected a member of the Academy of Medicine to fill the place of Professor Cornil, who died last April.

Industrial Accident or Disease?

The distinction between industrial accidents and occupational disease is often very delicate. Our jurisprudence tends to enlarge the idea of industrial accidents, as is shown by a recent decision in the case of a workman in a factory of chemical products, who had to clean a large retort in which were caustic residues. From the beginning of his task, the workman felt a tingling in his throat and his eyes, which continued to grow worse, until at the end of several hours, he had swollen eyes and was experiencing severe pain. Was this an accident or a disease? The court decided that it was an accident, since accidents should include, not only falls and shocks and other injuries which are produced in a single instant, but lesions resulting from a cause operating over a considerable period of time. Thus the law in regard to industrial accidents is extended to apply to workmen who have their hands frozen in carrying ice, to those who contract a disease after a short time passed in a place which is too hot or too cold, or in the midst of poisonous gases.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, December 2, 1908.

Suits Against Insane Asylums

We physicians have daily opportunity to learn how hard it is to remove prejudice from the minds of the people. This is an experience not only in nations of a lower grade of civilization: that the peasants in Russia beat and kill the doctors in a cholera epidemic is not so much to be wondered at in consideration of the education of the Russian people. That similar crude ideas still hold their own in Germany and repeatedly manifest themselves is shown by the publication every now and then of statements regarding the incarceration and detention in insane asylums of really mentally sound individuals. A short time ago an affair of this kind came to trial in a city of Silesia. The editor of a Berlin paper rather addicted to printing sensational news, published a severe attack on the physicians in a Silesian asylum because they had received and for some weeks detained in their institution an alleged sane man, victim of a conspiracy. As usual, the trial demonstrated that the charges were completely unfounded, that the supposedly innocent victim, who naturally regarded himself as sane, was in fact insane, and that his admittance to the asylum had been quite proper. The result was that the editor was condemned to six weeks' imprisonment on account of slander. This penalty must be regarded as well deserved for it is a wanton thing to shake the con-

fidence of the public in the insane asylums on insufficient information, and try to tarnish the reputation of physicians who are practicing their profession in a scientific manner. Unfortunately it is not to be expected that the outcome of this trial will hinder the repetition of such offenses. Probably the punishment of the editor will make his colleagues more cautious for a time, but sooner or later similar charges will appear again if any opportunity is given. And that, too, in spite of the fact that the conditions imposed by the authorities regarding the admission of insane people into public and private asylums are so strict that there is not the slightest possibility of the unjust imprisonment of patients and from time to time the asylums, both public and private, are visited by official commissions to investigate the condition of the institution itself as well as that of its patients.

Influenza in Prussia

According to the official statistics influenza carried off 5,512 persons in Prussia during 1907, twice as many as in 1906. The female sex was more affected in both years than the male. Persons over 60 years appear predominantly among the fatal cases. The largest number of deaths occur in the months from January to April and in December. The rural population furnishes a greater number of fatal cases than the cities, namely, 68 to 32 per cent., and among the occupations, the farmers show an unusually high mortality.

Suicide of School Children

The suicides of school children increasing year by year constitute an especially sad phenomenon in the hygiene of education. In the higher schools of Prussia, from 1880 to 1903, an average of fourteen pupils took their own lives annually; in 1907 the statistics show twenty, and in 1908, so far, twenty-three suicides among these pupils. Removal of the causes leading to some of these suicides among the older school children justifies the employment of school physicians even in the upper schools. So far school physicians have been officially installed only in the lower graded schools. Our neighboring community, Charlottenburg, has made a satisfactory beginning in this line by the appointment of medical inspectors for the high schools also. We may hope that this example will soon be followed by other cities.

Sanatorium and Educational Institution for Cripples in Berlin-Brandenburg

The association for the treatment and care of cripples for the province of Berlin opened an institution on December 1—a combination of clinic and school. The medical department is provided with all modern means of aid. It has at command an aseptic operating room, a room for medical mechanics, apparatus for massage and electrical treatment, an orthopedic work room, a department for hydrotherapy, etc. The pedagogic department is under the charge of an inspector of education and comprises three school classes and a subsidiary class, a class for the so-called Froebel's games, and three workrooms for shoemaking and tailoring. Those children who can not be placed in the school department, receive instruction in the sick ward itself. The industrial training of the boys comprises shoemaking, tailoring, office work, and orthopedics; that of the girls tailoring, art embroidery, housework and office work. The institute has at its disposal 358 beds, but is far from being adequate to the need as, in the district in which the association is active, there have been enumerated 6,617 cripples, 3,857 of whom require institutional care.

Cremation

The legal regulation of cremation in Prussia, which was not formerly permitted, seems to be assured according to the official announcements in the press. Objections are no longer raised by the imperial government to cremation, either from the criminal or the hygienic standpoint.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Dec. 16, 1908.

Fruit Versus Flour

The remarkable weather of the last spring and summer has, according to the reports of the ministry of agriculture, caused an unusual fall in the consumption of wheat and other flour in this country, because the supply of fruit was so abundant that in many districts it completely took the place of bread. The lower classes especially profited by these conditions; apples, pears and plums actually formed the chief

nourishment of many thousands of people. Even in the towns, an unheard-of amount of fruit was consumed. In medical circles the excellent state of the public health prevailing since August is attributed to this accidentally adopted vegetarian diet.

Reinfection with Syphilis

The general interest now taken in researches on syphilis justifies the recording of certain unusual instances of reinfection or superinfection with this disease. Experiments with monkeys have shown that it is possible to make syphilitic virus "take" again in monkeys previously infected with syphilis. Dr. Pollard's observations in a human case, recorded in a letter to the *Wiener klinische Wochenschrift*, is rather an unusual one. The observations are of much importance, since they were corroborated by findings of the *Spirochæta pallida*. The patient had suffered from typical syphilitic primary sore in 1905; had had several attacks of maculo-papulous exanthema, and had received treatment with inunctions and injections with mercury. Nevertheless, in the summer of 1908 he appeared again at the hospital with a typical primary sore on the penis and scleradenitis; there were positive findings of spirochete in the discharge. No secondary manifestations appeared during the time the patient was kept under observation (six weeks). All cases of reinfection reported hitherto, as well as all animal experiments, tend to prove that absence of secondary signs is the rule; the virus can not produce the lesions because the protective properties of the body are again active. The question whether the disease can ever be actually cured, or whether its effects can merely be sufficiently relieved by treatment to allow of a fresh infection has hitherto not been answered. The only thing which can be looked on as certain is that a complete immunization can not be confidently expected.

Pharmacology

MORE CONCERNS DECLARED FRAUDULENT

The Wilson Consumption Cure and the Soluble Sulphur Company Come Under Postoffice Ban

THE "REV. EDWARD A. WILSON" CONSUMPTION "CURE"

A fraud order has been issued by the postoffice authorities against a concern engaged in the "consumption cure" business under the name of Rev. Edward A. Wilson. The individual conducting the business was one C. A. Abbott of Brooklyn, the Rev. Mr. Wilson being a hypothetical personage whose name was used as an advertising "blind." Advertisements were published in newspapers, chiefly in those with a rural circulation, in which the Rev. Mr. Wilson informed the afflicted that "having been restored to health by simple means after suffering for several years with . . . consumption" he was "anxious to make known to fellow sufferers the means of cure." This he offered to do by sending free of charge to all applicants, "a copy of the prescription used, which they will find a cure for consumption, asthma, catarrh, bronchitis" and several other conditions.

Those who answered this advertisement received a large amount of printed matter purporting to come from the Rev. Mr. Wilson. In this the reverend gentleman explained how, when in charge of a church in Maine, he contracted tuberculosis and after trying various treatments, was finally cured by a famous Dr. Churchill of Paris, France. The prescription to which he owed his life he was giving away free in a spirit of thankfulness. But in view of the difficulty experienced in having many druggists fill the prescription, he had imported large quantities of the ingredients direct from Dr. Churchill himself, had had them compounded by a competent chemist, and was prepared to furnish a three weeks' supply of the same to any one who would send him \$3.00, including six or twelve cents for postage. As the prescription contained as its essential ingredient "Extract of Blodgetti"—a drug whose existence was as immaterial as that of the Rev. Mr. Wilson—the difficulty in getting it filled was not overestimated.

Investigation showed that there was no "Rev. Wilson"; that the ingredients were not imported; that they were compounded by Abbott himself, who was not a chemist; that

there was no "Extract of Blodgetti," and that the advertising "literature" was false and misleading in every respect. Hence the fraud order.

THE OHIO SOLUBLE SULPHUR COMPANY

The Ohio Soluble Sulphur Company of Greenville, Ohio, is another concern that has been suppressed as fraudulent by the postoffice authorities in spite of the efforts of the Physiologic Elements Co. of New York City, whose manager, H. M. Munsell, appeared in behalf of the Ohio company. The Ohio Soluble Sulphur Company also used an imaginary individual in its process of relieving the gullible sick of their money. "F. M. Hill, the world's greatest physiologic chemist" was the straw man in this case, and what Chemist Hill had not discovered in the realm of science—according to the advertisements—was too trivial to mention. But his greatest discovery was the process for making sulphur soluble, a discovery that "meant death to all malignant diseases" and "pure blood for every affected being in the land"—that is, providing such beings could pay \$2.00 for a two-ounce bottle. Soluble Sulphur, it should be said, was not a drug or medicine, but a "physiologic element."

"Whatever you may be suffering from, whatever your ills, whether the disease is of bacterial origin, like consumption, or of some chemical origin in the blood like rheumatism, Soluble Sulphur will cure you. There is no disputing this. It is a fact."

The number of morbid conditions in which Soluble Sulphur was indicated is simply marvellous. Space forbids us to list them; it would be easier to detail the pathologic conditions for which it is *not* recommended. Apparently, it is valueless in cases of housemaid's knee or soft corns—in all other morbid states, use it. The omission of these two afflictions, however, should possibly be taken as an oversight rather than as indicating any possible limitation to the therapeutic value of the remedy.

The Bureau of Chemistry, Department of Agriculture, analyzed this preparation and found that the amount of sulphur was less than one-half of 1 per cent.—to be exact, 0.42 per cent. Ninety-eight per cent. of the "remedy" was glycerin. In fact, the public was apparently paying \$2.00 for two ounces of glycerin, in which was dissolved a minute amount of ichthyol. This, then, was the wonderful new preparation that was advertised to "positively cure" cancer, rheumatism, sore eyes, barber's itch, spinal meningitis, and other diseases too numerous to mention, and to "destroy blackheads, beautify the complexion, and make the hair soft and glossy."

Fake testimonials were used, of course, and these combined with the false claims and the exploitation of the hypothetical Chemist Hill were the means of the Ohio Soluble Sulphur Company's undoing. The business conducted by this concern was declared to be "a scheme and device for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises," and was therefore suppressed by the postoffice department.

Dewees' Emmenagogue Mixture—A Survival of Polypharmacy

To the Editor:—I want information regarding Dewees' Emmenagogue Mixture:

R	
Tincturæ Cantharidis	f. 3i
Tincturæ Aloes	f. 3ss
Tincturæ Ferri Chloridi	f. 3iii
Tincturæ Guaiaci Ammoniatæ	f. 3iss
Syrupi q. s. ad	3vi

This seems to make a very unpleasant blackish mixture with apparent incompatibility between the iron and guaiac. My pharmacist does not seem to be able to do any better. Can the formula be put up without this reaction?

H. N. WHITELAW, M.D., Cliffs, Wash.

The above mixture is a survival of the polypharmacy introduced by the latter-day Paracelsan School. Evidently the celebrated Dewees, in formulating his prescriptions, did not take into consideration either compatibility or eligibility, as witness his well-known Carminative Asafetida Mixture or his Compound Tincture of Guaiac contained in the National Formulary. The emmenagogue mixture may be made fairly presentable by substituting the Tincture Ferric Citro-Chlorid,

N. F., the so-called "tasteless tincture of iron," for the Tincture of Ferric Chlorid, some honey and Fluidextract of Licorice for part of the syrup, to suspend the resinous constituents and to mask the taste of the aloes and guaiac.

The following modification is suggested:

MISTURA GUAIACI, ALOES, CANTHARIDIS ET FERRI.
(DEWEES' EMMENAGOGUE, MODIFIED.)

R				c.c.
Mellis depurati	fl.	3i	or	30
To this, contained in a vial, add gradually, previously mixed:				
Tincture Aloes	fl.	5ss	or	15
Tincture Guaiaci Ammoniatæ	fl.	3iiss		45
Shake after each addition; to this add in the same manner, previously mixed:				
Tincture Ferri Citro-chloridi	fl.	3iii	or	12
Syrupi	fl.	3ii		60
Then add:				
Tincture Cantharidis	fl.	3i	or	4
Fluidextracti Glycyrrhizæ	fl.	3iv		15
Misce bene. Sig.: Shake well.				

There is no reason why this combination could not be given in dosage form; that is, in pill or capsule, and the following is suggested:

PILULÆ GUAIACI, ALOES, CANTHARIDIS ET FERRI (DEWEES').

R				Gm.
Cantharidis, pulveris	gr.	iii		0/2
Aloes	gr.	xxiv	or	1 1/5
Guaiaci	.....	5iiss		10/0
Pillularum Ferri Carbonatis	.....	3ii		8/0
Mix and make into a mass. Divide into 100 pills. Put in gelatin capsules or coat with Cacao (see National Formulary, page 121).				

Two of these pills are equivalent to about one fluidram of the liquid mixture. They will disintegrate chiefly in the intestinal tract by the alkaline reaction of the secretions and thus insure the most favorable therapeutic action with the least digestive disturbance.

Write-up Manufacture in Germany

The readiness with which some physicians respond to the dishonorable appeals of manufacturers of nostrums is well shown by some quotations from *Der reelle Geschäftsmann*, Cologne, a journal devoted to the exposure of business frauds. These quotations are given in the *Apotheker-Zeitung*, September 30. From this it appears that there was inserted in a reputable journal a short time ago the following notice.

FOR PHYSICIAN. WANTED: Licensed physicians who are disposed to furnish favorable reports for advertising purposes of a newly introduced chemical preparation of epoch-making importance (germicide). Fee from 500 to 1,000 marks (\$120 to \$240).

In spite of the insult thus rendered to professional sentiment, a large number of offers from physicians were received in reply to this advertisement. Some were so cautious as to condition their recommendation on the utility of the article and to request the sending of a preliminary sample. But what shall be said of the conscientiousness of a physician and a specialist who writes: "I am not disinclined to give an opinion of your chemical preparation in the manner desired. Please send me further details regarding the scope of the report." Nothing is said of trying the remedy first; a favorable report is assured beforehand. The writer is concerned about the extent of the report because he would rather sell his convictions for 1,000 marks than for 500.

Another physician, the owner of a much-patronized dispensary in a large city, as well as the conductor of a private sanatorium, is still plainer. He is not forced to earn the "tainted" money. He is prepared to give the desired opinion and thinks it will be best for the manufacturer to furnish him the report already prepared, as the manufacturer is the best judge of what is needed. It is impossible to go further. A blank signature is the simplest way and the physician hands over his conscience done up in a brown paper parcel.

That the medical men who are willing thus to sacrifice their professional honor are not fair examples of the German medical profession goes without saying. This is shown when we learn other aspects of the character of those who thus offer their services.

In the first article, *Der reelle Geschäftsmann* scores physicians without mentioning names, but in a later issue it is more

specific and gives the names of Thisguens, a notorious Cologne "specialist" in skin and venereal diseases, who has attracted attention by publishing in advertisements his recommendation of a secret remedy for rheumatism. He is also willing to supplement his income from his special practice by giving his favorable opinion of the "germicide" for the net fee of 500 to 1,000 marks.

Correspondence

The Quantitative Estimation of Albumin in Urine

ST. LOUIS, Dec. 22, 1908.

To the Editor:—There is still lacking a practical and reliable method of determining the percentage of albumin in urine. The phosphotungstic method has been resurrected lately.

Edward H. Goodman and Suzanne Stern published in THE JOURNAL (July 4, 1908, li, 38) an article on "A New Method for the Quantitative Estimation of Albumin in Urine," describing the Tsuchiya modification of the phosphotungstic test. Henry R. Harrower refers to the same solution (THE JOURNAL, Oct. 31, 1908, li, 1511) under the name of "Goodman's reagent" (omitting the name of Suzanne Stern). In another paper (THE JOURNAL, Dec. 12, 1908, li, 2055) Goodman and Stern give due credit to Tsuchiya and his investigations. They describe at greater length a method similar to the Heller test as modified by Roberts and others. (von Jaksch: "Klinische Diagnostik," 1901, p. 391).

I do not believe that their assertion is correct, that "the Esbach method has for a generation been firmly established in every laboratory." The majority of physicians have been taught and know that the Esbach method is not reliable and could be used only for comparing increase or decrease of albumin in urine.

The results as tabulated by the above-named authors do not impress the reader as very exact. Where the differences between titration after the Tsuchiya-Goodman-Stern method and their own gravimetric findings exceed 50 to 150 per cent. (for instance Nos. 6, 7, 13, 22, etc., of their table) the results might be called "startlingly" inexact.

It would seem that the authors have not consulted Neubauer and Vogel's "Analyse des Harns" thoroughly. There they will find on pages 255-256 that phosphotungstic in presence of mineral acids will precipitate not only albumin, albumoses and peptones, but also xanthin bases, uric acid, kreatinin, etc., diamines, etc., urine pigments, potassium and ammonia. Such facts render their method just as uncertain as most of the older ones. Almost all normal urines will give the precipitate after a short while. It is to be hoped that, in the future communication which Goodman and Stern promise, that source of error will be eliminated.

GEORGE RICHTER.

[Proof of the above was sent to Dr. Goodman, who replies as follows:]

The contention of Dr. Richter that the method of determining the quantity of albumin in urine, described by Miss Stern and me, is similar to Roberts' test, I do not believe requires any discussion, as I am unable to see in just what particular the two methods resemble each other.

Dr. Richter's second contention, that my assertion pertaining to the universal use of the Esbach method is incorrect, may be justifiable, as I admit "every laboratory" is rather sweeping. Certain it is, however, that every laboratory I have seen in Germany and in the United States depends on the Esbach albuminometer for the routine albumin estimation. The statement that the majority of physicians know that the Esbach method is not reliable, I regard as just as sweeping as my assertion that Dr. Richter criticizes, for I know of no laboratory, private or otherwise, in Philadelphia at least, which does not make determinations of albumin by means of the Esbach albuminometer, in the original or in some modified form. Reports are constantly being published in the German journals of cases in which the albumin has been estimated by

the method, and in the domestic journals, when a method is specified, I have found the Esbach method used as a *sine qua non* of a urinary examination. I do not believe physicians wittingly subscribe to an error.

I have consulted Neubauer and Vogel's "*Analyse des Harns*" repeatedly and very thoroughly. As our method requires rarely more than 0.5 c.c. of urine, corresponding to 0.2 pro mille albumin, and in cases of pronounced albuminuria usually much less (0.05 c.c. urine corresponding to 2. pro mille albumin) it must be apparent that the amount of albumose, peptones, xanthin bases; uric acid, kreatinin and other substances precipitated by our solution, contained in 0.05 c.c. urine, must be very small. I do not know how sensitive to these substances Tsuchiya's solution of phosphotungstic acid is, and should be pleased to be enlightened on this point.

"Almost all normal urine will give a precipitate after a short while" is a statement which may or may not be true, and I should like further information as to just how long a "short while" is, I would inform my critic, however, that I have met with no "normal" urine that gives a precipitate in the few (10 to 30) seconds it takes me to make my test.

Nutmeg Poisoning.

PUKEKOHE, NEW ZEALAND, Oct. 26, 1908.

To the Editor:—The other day I had a patient who took at one dose, on an empty stomach, a freshly ground nutmeg, followed by a heavy meal. When I reached her five hours after the administration of the nutmeg, the woman was in a state of collapse. The pulse was 50 and very feeble. The respirations were between 30 and 40 and every second or third breath was a sigh. The skin and extremities were cold and the face flushed and mottled. The temperature was 95.

I gave 1/30 of a grain of strychnin sulphate hypodermically every three hours and 7½ grains ammonium carbonate with 20 minims each of spirits of ether and spirits of chloroform every four hours. I placed hot bottles all around the body and gave a cup of hot milk every half hour. The patient's pulse and temperature returned to normal in twenty-four hours. She then seemed fully recovered, has since improved, and now is as before the dose.

She took the nutmeg to check profuse and irregular menstruation. Once previously she had taken a much smaller dose for the same purpose with the desired result, and now having a worse attack, she took a larger dose, reasoning, no doubt, that if a little was good, much was better.

I can find nothing satisfactory about nutmeg poisoning in my books and wonder if there is any record of a similar case.

JOHN S. REEKIE, M.D., Ch.M.

Overrated Prospects for Physicians in Nevada

FALLON, NEV., Dec. 18, 1908.

To the Editor:—The literature sent out by the Reclamation Service on the Tucker-Carson Irrigation Project has induced nine physicians to come here and locate among a population of but few over 2,000, and not growing any.

Almost weekly, some eastern physician comes out at considerable expense and finds that here there are at least seven physicians more than the place needs. It is much the same all over Nevada, and this communication is written in the hope that it will save money for a class of professional men who have little to throw away.

JOHN E. WORDEN.

Correction in Hemolysis Article

CLEVELAND, OHIO, Dec. 21, 1908.

To the Editor:—I desire to correct an error in my article on hemolysis, published in THE JOURNAL, Dec. 12, 1908, under the subdivision, "Setting Up the Test." The serum for the control test should be heated at 55 degrees C. for ten minutes before the corpuscles are added. The tubes should then be placed in the refrigerator with the heated tubes until all are of the same temperature. Should the corpuscles be heated, as wrongly stated in my previous description, they would be hemolyzed by the heat alone.

G. W. CRILE.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

HYDRARGYRUM SUCCINIMIDUM IN TUBERCULOSIS

LAS ANIMAS, COLO., Dec. 14, 1908.

To the Editor:—Permit me to reply to the letter by Dr. Henriksen, in THE JOURNAL, Dec. 12, 1908, on the above-named subject. Had Dr. Henriksen carefully read my article in the U. S. Naval Bulletin for April, 1908, he would have seen that I consider any salt of mercury which can be administered by intramuscular injection a strong antituberculous agent, and that I use the succinimid of mercury because from long experience and observation I believe it possesses qualities which render it more advantageous than other salts of mercury in the treatment of both tuberculosis and syphilis by hypodermic injection. Mercury given by mouth or by inunction is of little, if any, value in the treatment of tuberculous infection.

B. L. WRIGHT, M.D.

CLEVELAND, OHIO, Dec. 11, 1908.

To the Editor:—In THE JOURNAL December 12, is a letter by H. K. Henriksen criticizing the recommendation of the use of hydrargyrum succinimidum, on the ground that it is a very rare salt, difficult to obtain, and little known. It seems to me that Dr. Henriksen is a little hasty in his conclusions. In 1903, when I was at Ehrmann's clinic, he recommended this salt as by far the best soluble form of mercury, on account of its easy solubility, the large dosage possible, its painlessness and its freedom from liability to cause abscesses. I have used it myself for nearly five years and so have many others who are familiar with the treatment of syphilis. It can readily be obtained and its price is such as to preclude any undue advantage being taken by the manufacturers.

W. E. SAMPLINER, M.D.

DEATHS OF PHYSICIANS FROM ACCIDENTS AND SURGICAL OPERATIONS

To the Editor:—Perusal of the death list of THE JOURNAL indicates to me that more than 10 per cent. of all deaths among physicians result from accidents and surgical operations. Why is it? It would seem that such men should be nearly free from such conditions.

E. K. ABBOTT, M.D., Monterey, Calif.

ANSWER.—We agree that deaths of physicians from accidents and surgical operations seem frequent. Reduced to actual percentages, however, they are not so frequent as our correspondent suggests. Each year we give a summary of the deaths of physicians for the previous year. The summary for 1908 appears in the editorial department of this issue, page 52.

For the last three years violence, which includes homicide and suicide, has caused very nearly 7 per cent. of the deaths among physicians; namely, 6.75 per cent. in 1905, 6.98 per cent. in 1906, 7 per cent. in 1907 and 7.6 per cent. in 1908. Operations were assigned as the cause of death in 2.59 per cent. in 1905, in 0.93 per cent. in 1906, and in 0.66 per cent. in 1908.

The physician's calling is attended with considerable danger; he travels a great deal; he deals with violent persons, including criminals, the insane, and those who are delirious from disease. Health officers necessarily incur the enmity of the ignorant, who object to sanitary restrictions. In this connection is of interest the report of an address by Mr. Kipling and some comments thereon, which were quoted in THE JOURNAL, Nov. 14, 1908, page 1719.

LAWS AND LITERATURE ON TUBERCULOSIS

To the Editor:—Please refer me to the literature dealing with the legislation in various states against the spread of tuberculosis.

WATSON S. RANKIN, M.D., Wake Forest, N. C.

To the Editor:—Can you tell me where I can secure cards and pamphlets for distribution to tuberculosis patients giving hints as to proper care in the home?

ARTHUR BOWLES, M.D., Eleva, Wis.

ANSWER.—Each of the above correspondents will find an answer to his question in "The Campaign Against Tuberculosis in the United States." This valuable and interesting book, reviewed Nov. 21, 1908, p. 1798, can be obtained for one dollar from the Charities Publication Society, 125 E. 22d St., New York City. The price is merely a nominal one since the expense is in part met by an endowment fund. The book contains a summary of the laws of each state and enumerates and describes all the anti-tuberculosis sanitariums and societies of the United States. From some of the latter, one may secure advice and samples of anti-tuberculosis literature, including cards and pamphlets.

HYPODERMIC INJECTIONS OF CALOMEL IN SYPHILIS

Dec. 12, 1908.

To the Editor:—Please give the details of the treatment of syphilis by injection of calomel.

K. L.

ANSWER.—The calomel should be suspended in water by means of mucilage of acacia, in oil, or in petrolatum or glycerin. The dose for a single injection should be from one to three grains,

given once or twice weekly. The syringe should have a needle larger than the ordinary hypodermic needle. The injection should be made into the gluteal muscles, with strict aseptic precautions, and the needle should enter the muscle before the fluid is injected. The following formula is recommended for mercury salicylate. Calomel could be substituted for the mercury salicylate:

R.	gm. or c.c.	
Hydrargyri salicylatis (vel chloridi mitis).....	1	gr. xxij
Adipis lane hydrosl.....	1	gr. xv
Olei olivæ.....	8	m.ccxvij

INROADS OF WORMS ON FAMILY PRACTICE

BEREA, OHIO, Dec. 21, 1908.

To the Editor:—The item on worms in THE JOURNAL, December 19, is worthy of the attention of every family physician. The symptoms attributed by the laity to worms, such as grinding the teeth, picking the nose, starting up with loud screams when asleep, etc., are all reflex symptoms indicating intestinal irritation, caused, however, far more often by fermenting and undigested food than by worms.

WILLIAM M. GREGORY.

STATE BOARD RECIPROCITY WITH GEORGIA

BOSTON, Dec. 18, 1908.

To the Editor:—Kindly state what states reciprocate with Georgia, and on what basis.

R. L. CLEBORNE, M.D.

ANSWER:—Georgia reciprocates with Indiana on the basis of an examination only, and with Iowa, Kentucky, Maryland, Michigan, Nebraska, Nevada, Virginia, West Virginia and Wisconsin, on the basis either of a diploma or of an examination.

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers, U. S. Army, Dec. 26, 1908:

Richardson, G. H., M. R. C., relieved from duty at the Presidio of San Francisco, and ordered to sail January 5 for duty in the Philippines Division.

Lamson, T., captain, relieved from duty at Fort Bliss, Texas, and ordered to Columbus Barracks, Ohio, for duty.

Feld, P. C., captain, granted leave of absence for fourteen days.

Greenleaf, H. S., captain, granted sick leave of absence to Jan. 22, 1909.

La Garde, L. A., Appel, A. H., Ebert, R. G., Carter, E. C., lieutenant colonel, ordered to Fort Robinson, Nebr., for general court martial duty, Jan. 6, 1909.

Wren, R. J., M. R. C., granted an extension of one month to his sick leave of absence.

Leech, W. F., M. R. C., honorably discharged from the service of the United States.

Peck, L. B., M. R. C., granted leave of absence for ten days.

Hussey, S. W., dental surgeon, granted leave of absence for one month, twenty-three days.

Tignor, E. P., dental surgeon, left Fort McHenry, Md., for duty at Fort Monroe, Virginia.

Navy Changes

Changes in the Medical Corps, U. S. Navy and Marine Corps, for the week ending Dec. 26, 1908:

Mayers, G. M., P. A. surgeon, detached from the naval recruiting station, Baltimore, and ordered to the naval medical school hospital, Washington, D. C., for treatment and observation.

Brooks, F. H., asst.-surgeon, detached from the Franklin and ordered to the naval recruiting station, Baltimore.

Huffman, O. V., asst.-surgeon, ordered to the naval medical school hospital, Washington, D. C., for treatment and observation.

Thompson, E. W., acting asst.-surgeon, ordered to the naval hospital, New York.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Dec. 23, 1908:

Mead, F. W., surgeon, granted 2 days' leave of absence from Dec. 25, 1908.

Oakley, J. H., passed asst.-surgeon, granted 2 days' leave of absence from Dec. 18, 1908.

Cummings, Hugh S., passed asst.-surgeon, leave of absence for one month from Oct. 29, 1908, granted Sept. 2, 1908, amended to read 26 days from Oct. 29, 1908.

Billings, W. C., passed asst.-surgeon, granted 14 days' leave of absence from Dec. 25, 1908.

Korn, W. A., passed asst.-surgeon, granted 10 days' leave of absence from Dec. 24, 1908.

Creel, R. H., passed asst.-surgeon, granted 7 days' leave of absence from Dec. 21, 1908, under paragraph 191 of service regulations.

Frost, W. H., asst.-surgeon, directed to report to Surgeon G. W. Stoner, chairman board of examiners Jan. 12, 1909, to determine his fitness for promotion to the grade of passed asst.-surgeon.

Mullan, E. H., asst.-surgeon, directed to report to Surgeon G. W. Stoner, chairman board of examiners Jan. 12, 1909, to determine his fitness for promotion to the grade of passed asst.-surgeon.

Kastle, Jos. H., chief division of chemistry, Hygienic Laboratory, granted 10 days' leave of absence from Dec. 15, 1908.

Blanchard, J. F., acting asst.-surgeon, granted 2 days' leave of absence from Dec. 17, 1908.

Bowers, Paul E., acting asst.-surgeon, granted 7 days' leave of absence from Dec. 17, 1908, under paragraph 210 of service regulations.

Whight, S. D., acting asst.-surgeon, granted 3 days' leave of absence from December 24, 1908, without pay.

Wakefield, H. C., acting asst.-surgeon, granted 6 days' leave of absence from Dec. 14, 1908, under paragraph 210 of service regulations.

Walkley, W. S., acting asst.-surgeon, granted 7 days' leave of absence from Dec. 23, 1908.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service during the week ended Dec. 23, 1908:

SMALLPOX—UNITED STATES

California: San Diego County Nov. 1-30, 11 cases; San Francisco Nov. 27-Dec. 3, 7 cases.

Indiana: Elkhart, Dec. 6-12, 1 case; Lafayette Dec. 8-14, 6 cases.

Kansas: Kansas City Dec. 13-19, 2 cases.

Texas: San Antonio Dec. 6-12, 1 case.

Utah: Salt Lake City Nov. 1-30, 36 cases.

Wisconsin: La Crosse Dec. 6-12, 2 cases; Milwaukee Dec. 22-28, 3 cases.

SMALLPOX—FOREIGN

Algeria: Algiers Nov. 1-30, 20 deaths.

Brazil: Bahia Nov. 7-14, 51 cases, 2 deaths; Pernambuco Oct. 16-31, 24 deaths; Rio de Janeiro Nov. 9-15, 311 cases, 141 deaths.

Canada: Kingston Nov. 23-29, 2 cases.

India: Bombay Nov. 16-24, 1 death.

Mexico: Veracruz Dec. 6-12, 1 case.

Peru: Lima Nov. 15-21, 1 case.

Russia: Moscow Nov. 22-28, 9 cases, 3 deaths.

Spain: Valencia Nov. 22-28, 3 cases.

Turkey: Constantinople Nov. 28-Dec. 6, 9 deaths.

CHOLERA

Japan: Fukuoka ken Sept. 15-25, 49 cases, 22 deaths; Oita ken Jan. 1-Nov. 15, 7 cases, 4 deaths; Saga ken to Nov. 15, 2 cases; Tsushima Oct. 20-31, 70 cases.

Korea: General, Oct. 21-Nov. 15, 31 cases, 2 deaths.

Philippine Islands, Manila: Oct. 25-31, 45 cases, 23 deaths.

YELLOW FEVER

Mexico: Merida Nov. 29-Dec. 5, 3 cases; Veracruz, 4 cases, 3 deaths; Zumpich, Nov. 1-30, 2 cases.

PLAGUE

Brazil: Pernambuco Oct. 1-31, 3 deaths.

Chili: Iquique Nov. 1-6, 1 case.

China: Hong Kong Nov. 1-7, 1 case, 1 death.

Ecuador: Guayaquil Nov. 22-28, 2 deaths.

Peru: Lima Nov. 5-11, 5 cases, 1 death.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Jan. 4-5. Sec., Dr. Ancil Martin.

ARKANSAS: Little Rock, Jan. 12. Secretaries: Regular, Dr. F. T. Murphy, Brinkley; Homeopathic, Dr. P. C. Williams, Texarkana; Eclectic, Dr. A. J. Widener, Little Rock.

COLORADO: Denver, Jan. 5. Sec., Dr. S. D. VanMeter, 1723 Tremont St.

DISTRICT OF COLUMBIA: Washington, Jan. 12. Sec., Dr. George C. Ober, 210 B. St., S. E.

ILLINOIS: Coliseum Annex, Chicago, Jan. 18-20. Sec., Dr. J. A. Egan, Springfield.

MINNESOTA: Old Capitol, St. Paul, Jan. 5. Sec., Dr. W. S. Fullerton, 214 American National Bank Building.

NEW MEXICO: Santa Fe, Jan. 11. Sec., Dr. J. A. Massie.

NORTH DAKOTA: Grand Forks, Jan. 5-7. Sec., Dr. H. M. Wheeler.

OKLAHOMA: Chickasha, Jan. 12. Sec., Dr. Frank P. Davis, Enid.

RHODE ISLAND: 313 State House, Providence, Jan. 7-8. Sec., Dr. Gardner T. Swarts.

SOUTH DAKOTA: Sioux Falls, Jan. 13-14. Sec., Dr. H. E. McNutt, Aberdeen.

VERMONT: Montpelier, Jan. 12-14. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Spokane, Jan. 5-7. Sec., Dr. Kenneth Turner, Walker Bldg., Seattle.

WISCONSIN: Milwaukee, Jan. 12-14. Sec., Dr. J. V. Stevens, Jefferson.

Reciprocity in Illinois

The Illinois State Board of Health now reciprocates under certain conditions, with the following state boards, in the case of licenses issued after examination: Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin and Wyoming.

Idaho October Report

Dr. W. F. Howard, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, Oct. 6-7, 1908. The number of subjects examined in

have talked with the physicians doing this class of work and they all say that if they were assured that no other doctor would take it up, they would quit, but they will not quit, only to have some one else take it at the same figure."

We have emphasized again and again the evils and dangers of lodge practice. It is not the fact that the contract exists, but it is the terms on which the contract is made which are objectionable. To the physician, such an arrangement is degrading and suicidal so far as professional self-respect and progress are concerned. To the patient it is unjust and dangerous, since professional services at \$2.00 a year are not only of little value to him but are an actual menace. To the labor union, such a contract is a prostitution of its cardinal principles, i. e., a fair return for a fair amount of services. It would be difficult for a labor union man to reconcile the payment of a fixed pittance for an indefinite amount of work with the principles regarding his own compensation advocated by his union. The only party which seems to profit by the transaction is the fraternal order which assesses its members \$1.00 per month and farms out the physicians' services to them at a cost of fifty cents a quarter. So long as there are physicians whose moral, mental and professional level is such that they are willing to become bond servants for the profit of exploiters of the profession, so long will there be men to take such positions, no matter at what compensation. Restrictive and prohibitive measures have succeeded in some localities and have failed in others. This economic question, like all such problems, will probably be settled only when the people realize that they get exactly what they pay for and that a doctor who only receives fifty cents quarterly is making a pretense at rendering services which are not worth even that absurd amount.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Fourth Weekly Meeting

DISEASES OF THE SCROTUM AND TESTICLES

SCROTUM

INJURIES AND WOUNDS.

CUTANEOUS AFFECTIONS.—Erythema intertrigo, eczema, pruritus, pediculosis, diagnosis and treatment of each.

TUMORS.—Epithelioma, symptoms and treatment.

TESTICLES

ANOMALIES.—(1) Of development, (a) number (excess or deficiency), (b) size (excess or deficiency); (2) of migration, (a) undescended (in or out of normal course), (b) descended (inversion).

CONTUSIONS AND WOUNDS.—Symptoms and treatment.

EPIDIDYMITIS. EPIDIDYMO-ORCHITIS, ORCHITIS: Etiology and symptoms of each.

TUBERCULAR DISEASE.—Pathology, changes in epididymis, in testicle, primary and secondary lesions. Diagnosis.

SYPHILITIC DISEASE.—Pathology. Diagnosis.

TUMORS.—(a) Carcinoma. Types, pathology, differential diagnosis. (b) Sarcoma. (c) Cystoma. (d) Enchondroma. (e) Lymphadenoma.

HYDROCELE.—Pathologic varieties. Acute, chronic. Diagnosis, treatment of each.

HYDROCELE OF THE CORD.—Pathologic and clinical varieties.

HEMATOCELE.—Pathologic and clinical varieties. Diagnosis.

VARICOCELE.—Etiology, symptoms, treatment, palliative and radical.

TUBERCULOSIS OF CORD AND VESICLES.—Diagnosis. Prognosis.

VESICULITIS.—Symptoms, treatment.

DISEASES OF THE PROSTATE

PROSTATITIS.—Acute; causes, predisposing and immediate. Treatment. Chronic, symptoms and diagnosis.

TUBERCULOSIS.—Frequency, primary and secondary, age, pathology. Diagnosis and prognosis.

ENLARGEMENT.—Pathology: Changes: (1) In glandular, (2) in fibrous; involvement of one or more lobes, effect on urethra, bladder, ureters, kidneys. Coincident pathology from senility. Symptoms: (1) Frequent micturition, (2) delay in starting, (3) dribbling, (4) retention. Effects of infection. Treatment: Hygienic, medicinal, dilatation. Catheterism, indications, dangers, technic. Operative treatment: (1) Overdilatation of sphincter, (2) prostatotomy, (3) prostatectomy, (4) cystostomy, (5) castration or vasectomy.

MONTHLY MEETING

Treatment of Cystitis.

Physiologic and Therapeutic Action of Urinary Antiseptics and Sedatives.

The Present Status of Prostatic Surgery; The Results of Prostatectomy.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, Jan. 26.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-first Annual Session, held in St. Louis,
Dec. 15-17, 1908

The President, DR. FREDERICK W. PARHAM, New Orleans, in the Chair.

The new officers elected were mentioned in THE JOURNAL, Dec. 26, 1908, page 2225.

Syphilitic Hyperplasia of Bone

DR. C. E. CALDWELL, Cincinnati: This condition is characterized by the deposition, without apparent coincident inflammatory symptoms, of a bony substance from the osteogenic layer of the periosteum. When occurring in the long bones, particularly in the tibia, it results in overgrowth or a species of gigantism of the affected bone. Occurring in the metaphyses or epiphyseal ends of the long bones, through juxtaposition to a joint, it may be mistaken either for tuberculous epiphysitis, or, as in one case, may simulate closely in its clinical history and appearance a myeloma or giant-celled tumor of the epiphysis. In the Roentgen ray we have a satisfactory means of differential diagnosis, and we are usually rewarded with a picture which definitely classifies the condition.

The class of cases to which I refer have usually a remote and not always clearly defined history of syphilitic infection. The progress of the affection is so gradual and accompanied by such slight disturbance of the comfort of the patient that he does not usually present himself for treatment until the bony overgrowth is such as to attract his attention. Inasmuch as the patients who have come under my observation have not undergone operation, but have more or less promptly yielded to treatment with iodid of potassium in large doses, in a period varying from six weeks to three months, with local inunctions of mercurial ointment, there has been no opportunity for pathologico-histologic investigation. Inferentially, from the x-ray pictures, there is a formative osteitis of an extremely chronic form, which not inaptly may be compared to the chronic interstitial hyperplasia of internal viscera, and to the syphilitic hyperplasia of the coats of arteries resulting in obliterating endarteritis. It is not improbable that in this class of cases there may be nutritive changes in the periosteum which produce a condition not dissimilar to leontiasis or to Paget's disease. In one case affecting the lower end of the tibia the tumor was so circumscribed and had grown so large as to have deceived certain surgeons into the belief in its sarcomatous or myelomatous nature. In this case, a man, aged 34, in whom there were found no stigmata of syphilis, a history was elicited

of a sore which had been contracted seventeen years before, although there was no history of secondary mischief. A diagnosis of syphiloma or formative osteoperiostitis was made and confirmed by the x-ray. Iodid of potassium in large doses cured the patient in three months.

DISCUSSION

DR. ARTHUR DEAN BEVAN, Chicago: We should be repeatedly reminded of the fact that there are syphilitic granulomas that produce tumor-like masses of the bones which are very apt to be mistaken for a sarcoma. Esmarch discusses the general subject of sarcoma and syphilitic lesions and the effect of antispecific treatment in connection with these lesions. A man was brought to me by a good practitioner with a diagnosis of sarcoma of the thigh; the clinical picture was definite, the patient, the father of four or five children, denying absolutely any history of syphilis. When informed that amputation at the hip joint was necessary, he was willing to submit to the operation. Fortunately, before doing this extensive operation, massive doses of iodid of potassium were employed for a few months, with entire disappearance of the tumor, and then the patient confessed to a syphilitic lesion long before he was married, with the statement that he had not said so before because he was so confident that there could be no connection between that initial lesion and the present condition. How does Dr. Caldwell differentiate between an ordinary gummatous lesion, which is so common, and a hyperplasia?

DR. C. E. CALDWELL: I made this diagnosis inferentially, but it is through clinical experience of a number of cases in which I have seen this peculiar condition of new bone under the periosteum without the involvement of the overlying skin when the bone is superficial. In ordinary gummatous periostitis of the more common type there is infiltration and thickening roundabout; and there is often discoloration of the skin. The clinical history is more acute than in the cases I have described. The disease went on for a number of years before the case was referred to me for diagnosis. The object of the paper is to call attention to the fact that these slow overgrowths of bone are likely to be syphilitic when a history of former infection can be elicited. In sarcoma there is a homogeneous breaking of the x-ray rather than that uncertain, indefinite, irregular outline found in these syphilitic lesions. If we pay more attention to these patients and examine them all with the x-ray fewer errors will be made.

Myoma and Myosarcoma of Stomach

DR. JAMES E. THOMPSON, Galveston, Texas, reported one case with the following symptoms: Marked hematemesis and melena; muscular cramps (tetany); no tumor palpable. Examination of gastric juice showed free hydrochloric acid, 40; no lactic acid. A partial gastrectomy was performed successfully. The tumor was found to spring from the anterior wall of the stomach and projected into the interior. Microscopically, it was a pure myoma. Dr. Thompson reviewed the literature, and found in all 62 cases of myoma and myosarcoma; 19 were operated on, and 43 were found at autopsy, or in different pathologic museums. The histories of cases are too meager to build up a symptomatology.

DISCUSSION

DR. MAURICE H. RICHARDSON, Boston: While I have not had experience of this kind in stomach surgery, still I have been unable to tell the difference between a malignant tumor of the pylorus and a chronic ulcer. In these cases we can not always have at hand experts with the microscope, with freezing apparatus, sections made, etc., to assist us, and yet we must know on the spot what the diagnosis is. If we can not make a diagnosis we do not know the possibility of these growths. There are many cases in which it is impossible for the surgeon to make an accurate diagnosis at the time, yet he must decide at the time what he is going to do, how much he can determine by the sense of touch, by the sense of sight, and by the experience he has had. Every case of the kind reported widens a man's horizon and adds to his knowledge.

DR. CHARLES H. MAYO, Rochester, Minn.: Benign tumors of the stomach are so rare in proportion to malignancy that they are seldom thought of; at the same time, there are a few of these cases in which the tumors have been found to be malignant at autopsy. I recall a case of adenoma of the stomach as large as a pear, with large pedicle, yet not eroded, and not bleeding, which was situated in the posterior wall, projecting into the stomach, and was removed by excision. I also recall three cases of muscular hypertrophy of the stomach that produced obstructive symptoms. These occurred at the pyloric end, and were similar to those that we know of as occurring in children with muscular hypertrophy, encircling the pyloric end of the stomach, producing starvation and death. These cases were in adults, and yet the condition was the same, requiring resection of the stomach as for pyloric tumors.

DR. GEORGE W. CRILE, Cleveland: I want to add a case of myoma of the stomach operated on by my associate, Dr. Lower. The case conformed to the one described by Dr. Thompson. I also want to add a case of adenomyoma in my own experience which was situated in the wall of the stomach. At the time of the operation it was supposed to be a sarcoma. The stomach wall was resected and the patient recovered.

DR. J. E. THOMPSON: I thought I was dealing with a malignant growth, and if I had only known it was a benign tumor a more simple operation would have sufficed, and I should not have removed such a large portion of the stomach.

Conclusions Based on Observations of Five Hundred Cases of Fracture of the Skull

DR. WALTER C. G. KIRCHNER, St. Louis: In treating this subject I give my impressions and conclusions based on experience and observation of several hundred cases of fracture of the skull. Linear fractures of the vault usually do not require operation unless they involve important nerves or sinuses. In depressed fractures the fragments causing depression should be elevated or removed. Experience has shown that in compound fractures, especially when there is injury to the dura or brain, drainage of the wound is usually desirable. Operation for fracture at the base is indicated when hemorrhage is extradural and when there are no signs of compression. The middle fossa is most frequently involved and drainage here can be easily instituted. The practice of examining hematomata by means of exploratory incision, when reasonable precautions are taken, is practically without danger, and often gives valuable information as an aid in diagnosis. The neurologic findings are of value in determining focal symptoms, but when complex brain disturbances exist, they may be unreliable as diagnostic aids and require special interpretation. Brain compression is a positive indication for operation, and as a rule the sooner compression is removed, the better the prognosis. At operation shock and hemorrhage are factors that should be carefully regarded, and operation should be done as speedily as possible. In doubtful cases, when it is probable that the symptoms are caused by brain compression, exploratory operations are indicated. The expectant treatment is to be advocated in those cases in which there are no symptoms of brain compression, in which the temperature and pulse remain nearly normal, and in which the reflexes are but little altered. Unconsciousness in itself is no index of the seriousness of the trouble. Operation is contraindicated in those cases in which the symptoms are the result of intrinsic destruction of brain tissue, when the temperature is high, when the pulse is rapid, and the blood pressure diminished. The importance of a longer period of rest in bed should be strongly emphasized, so that the danger of secondary complications might be avoided.

DISCUSSION

DR. JOHN D. S. DAVIS, Birmingham: I do not agree with Dr. Kirchner in regard to linear fracture. I have never seen one that sooner or later did not give trouble as the result of pressure, and I think it is always better in such cases to explore and see whether or not there is any trouble.

DR. J. SHELTON HORSLEY, Richmond, Va.: I do not see what we can accomplish by exploring a linear fracture when there

are no symptoms, and when the fracture is not compound. If there is marked compression, or if there are focal symptoms indicative of brain trouble, operation should be done at once; but in a case of simple linear fracture without compression, without focal symptoms, we will do more damage than we can do good by attempting to remove some of the bone, leaving a larger raw surface, with more adhesions, and greater likelihood of subsequent trouble.

DR. MAURICE H. RICHARDSON, Boston: I have found operations for acute epilepsy secondary to fracture of the skull so discouraging that I do not undertake them with any great hope of effecting a cure. When people have their heads smashed, more or less, I feel that we must take reasonable precautions to be sure we are not overlooking serious injuries of the skull, thinking perhaps they are trivial. I do not feel that I can add anything to the discussion except to mention the discouraging features of late results from trauma with presumably a certain amount of compression and perhaps a spicule of bone sticking through the dura mater.

DR. G. W. CRILE, Cleveland: I would suggest the use of hexamethylenamin in cases of fracture through the base of the skull, because if large enough doses of this drug be given it will be eliminated in the cerebrospinal fluid, and you may sterilize, it is claimed, wholly or partly the cerebrospinal fluid; therefore in fractures of the base of the skull this drug is of value. To accomplish this it is necessary to give about one hundred grains a day of the drug. This suggestion was made by McCallum of Baltimore. In cases of fracture of the skull I have also used a Bier bandage around the neck, and believe that it seems to be of benefit.

DR. MILES F. PORTER, Fort Wayne: Many of these secondary brain troubles can be averted by exploratory operation, such as Dr. Kirchner has advised in doubtful cases. Also by exploratory operations we can remove conditions which later on will lead to serious trouble, such as epilepsy. About 30 per cent. of children receiving cranial injuries at birth subsequently develop epilepsy, and it is probable that a much larger percentage of these injuries to the skull and brain in adults subsequently cause epilepsy. If these epilepsies are to be cured, if you will permit an Irish bull, you must cure them before they begin. After the epileptic habit is established, even though it be clearly of traumatic origin, these patients do not respond very well to surgical procedures; a large number are only cured temporarily. The lesson is this: If we expect to do good in these cases it must be done by early operation. We must seek to prevent the development of epilepsy rather than to cure it after it has once been established. I heartily favor the suggestion that in these cases, where there is doubt, this doubt may be expelled by an exploratory operation, which should be done just as we would explore, for instance, the abdominal cavity.

DR. LE GRAND GUERRY, Columbia, S. C.: The use of hexamethylenamin has been mentioned by Dr. Crile; I think it was accidentally discovered by Dr. McCallum; that is, he recovered pure formaldehyd from a biliary fistula in a patient in the hospital, and afterward the pure formaldehyd was recovered from the cerebrospinal fluid after the use of hexamethylenamin. Dr. Cushing of Baltimore last year advocated decompression in the relief of these fractures of the base of the skull. I have had some experience with this operation and am favorably disposed toward it.

DR. R. M. CUNNINGHAM, Birmingham, Ala.: I have seen 150 cases of fractures of the skull. They can be divided into four classes: First, those in which the patients are killed immediately or die within a few hours. They call for no comment. Second, those in which there are gross surgical lesions and pronounced neurologic symptoms. Third, those in which there are gross surgical lesions, with few or no neurologic symptoms. Fourth, those in which there are pronounced or slight neurologic symptoms, but no gross or surgical lesions. The first class of cases call for no comment because the patients are dead or will soon die. There should be no dispute over the second class, because when there is a lesion and symptoms operative procedure is called for. The third class, those in which there are gross pathologic lesions, and no or few neurologic symptoms, are common in

fractures of the vault in which there is depression or comminution of bone, with or without symptoms; these should be operated on. Many of these cases can be operated on early without any shock or danger attending the procedure. When there is a linear fracture without depression and without symptoms, I usually determine the source of the injury. If the fracture is by direct violence, with a small implement, or was produced by a fall from a height on some obstacle, if there is the least indication of depression of the external table, and a linear fracture leading off, perhaps stellate, I operate, because there is a strong probability that the internal table is scaled off and is stuck into the dura. If it is from the vault, on a smooth surface, like the floor or the ground, or a blow with a large implement, and there is a crack in the skull without any visible depression of the external table, and without its radiation in a stellate direction, and without neurologic symptoms, I do not operate. A crack in the skull will heal with but little callus, and there is little danger of a tumor or endostosis growing from the surface of the brain. In my experience many of these patients go back to work with a crack in the skull.

DR. HORACE J. WHITACRE, Cincinnati: It is my practice, no matter how slight the injury, to keep these patients away from business and from all mental work for a long period of time. I have kept schoolboys from going to school for six months, and business men away from their business for from six months to a year after injuries to the skull, even though they were apparently well and had recovered promptly.

Fractures of the Elbow Joint

DR. ROBERT CAROTHERS, Cincinnati: I have selected three points for consideration: First, the importance of a correct diagnosis; second, current apposition and maintenance of the fragments; and third, early passive motion. A diagnosis is based on the physical signs present and confirmed by *x-ray* plates made at right angles to each other of the injured elbow. It is the careful study of the case that counts, such as the cause of the accident, the age, comparison of the injured with the uninjured elbow, and then an elucidation of any and all the signs of fracture, and especially as applied to the location under consideration. After this evidence has been obtained, with a careful study of the *x-ray* plates, one is able to arrive at a diagnosis which is not only complete but likewise scientific. Since these injuries occur with such frequency in childhood, in reading an *x-ray* plate in such a case one must have in mind the ossifying centers in the immediate neighborhood of the elbow joint, and not be misled thereby. I can not lay enough stress on the *x-ray* examination of fractured elbow joints, for a diagnosis otherwise made is a guess at the best. The most frequent fractures are of the internal or external condyle, the lower end of the humerus, epiphyseal separation, Y-shaped or T-shaped fractures, fractures of the olecranon, and head or neck of the radius. In the case of a detached external condyle, apposition by manipulation and maintenance by adhesive plaster splints with traction and a plaster-of-Paris bandage for protection, the forearm being semi-flexed and pronated, is all that is to be advised in the majority of cases. In an epiphyseal separation, fracture of the lower end of the humerus, the line of fracture from above downward, and from behind forward, and the misplaced fragment being upward and backward, also in the T-shaped and Y-shaped fractures, apposition is best effected by first extension, then traction of the fragment, and, last, extreme flexion of the forearm. Maintenance is secured by a plaster-of-Paris splint, which will insure overflexion of the forearm. In the so-called chisel fractures of the head of the radius the repair is usually with so much callus and impairment to function of the joint that it is advisable, unless for some good reason contraindicated, to remove the broken fragment. In the fractures of the neck of the radius, the best results will be obtained by making apposition which ordinarily is easy by manipulation and maintaining the same with the forearm in a semiflexed position to overcome a possible displacement of the biceps.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Regular Meeting, held Nov. 25, 1908

The President, Dr. A. M. EATON, Philadelphia, in the Chair

SYMPOSIUM ON VACCINATION

The Role of the Bureau of Health in Public Vaccination

DR. ALEXANDER C. ABBOTT: When smallpox appears in a community the people are supplied with two weapons of defense: First, hospitals for the segregation of cases; second, vaccination. The former is of great convenience in lessening the number of foci in private houses and in placing patients under conditions where they can be properly cared for; but, compared to the value of vaccination in getting smallpox out of the community and preventing it from reappearing, it is nothing. There is no general compulsory vaccination law, but we have a good law which if conscientiously and discreetly administered will prevent serious outbreaks of smallpox.

The first rôle of the Bureau of Health is soberly and as a matter of course to pay particular attention to vaccination. Since July 1, 1903, there have been 324,816 persons vaccinated in the routine work of the Bureau of Health. This does not include vaccinations by physicians in hospitals, dispensaries, orphan asylums and every place where people congregate. Since Jan. 1, 1904, the Bureau of Health has paid out \$19,110 for vaccine virus. We estimate roughly that it costs the city about 27 cents for a single vaccination. In the epidemic of 1903, while we had no difficulty in persuading most employers of labor to require a certificate of successful vaccination from employes, I believe that to be a measure well worth bearing in mind. We had intelligent cooperation also from the hospitals in their agreeing to require a certificate of successful vaccination from all visitors. A point which we insisted on with only partial success was that since the state favored vaccination any institution receiving state aid should see that its inmates were vaccinated. That is a point which I think can be well taken. If among all people vaccinated there had been many serious results I think it likely we would have heard of them.

I have heard of one death, with the death certificate marked with vaccination as the primary or secondary cause, I do not remember which. Investigation showed that the child had septic pneumonia when it died; we learned that the man who signed the death certificate did not believe in vaccination. I think that half a dozen cases in which the mothers have brought their children to my office represent the maximum of bad arms we have heard of. In one case which looked particularly nasty we took off a filthy rag which the child had been wearing since the vaccination; the sore had become infected and was suppurating. The child was put into the hands of a competent person and rapidly recovered. This was the trouble with practically all cases of bad arms brought to the health office. At the opening of school dozens and dozens of children present to the inspector certificates of successful vaccination signed by perfectly competent and, so far as I know, perfectly honest physicians, but the most careful examination can show no evidence of a vaccination scar. I have about 500 such certificates in my office. Inquiry showed that in the majority of cases, while the wound was drying the certificate was written and the physician never saw the child again. Another interesting phase is that of the so-called immunes from vaccination. You would not, however, and many immunes if good virus were used. I believe that some vaccinations are done so carelessly that bad results only can be expected. The vaccination should be done with surgical care and with properly prepared virus.

Smallpox Before and Since the Discovery of Vaccination

DR. JAY F. SCHAMBERG: The date of the origin of smallpox has not been definitely established. Smallpox was as prevalent among the inhabitants of European countries in the eighteenth century as measles is at the present time. The distinguished mathematician, Daniel Bernouille, calculated that not less than 15,000,000 human beings died of smallpox in twenty-five years. When these and other figures are added to the deaths due to devastating epidemics in Asia, Africa and America, the estimate of Bernouille does not appear to be

overstated. Vaccination has totally changed the age period of smallpox. It is exceedingly rare for a successfully vaccinated child under 5 years of age to die of smallpox, and such death is uncommon in a child under 10 years who is successfully vaccinated. The careful records of smallpox mortality kept in Sweden and England make it possible to prove by documentary evidence that a marvelous decrease in the deaths from smallpox occurred within a short period after the introduction of vaccination. In the twenty-eight years before vaccination in Sweden, there died each year from smallpox out of each 1,000,000 of population 2,050 persons; during the forty years following vaccination, out of each 1,000,000 of population the smallpox deaths annually averaged 158. Such figures might be multiplied by reference to the records of other countries. The opponents of vaccination declare that the decrease in smallpox is due to the discontinuance of inoculation. Unfortunately for this contention, the increase in the prevalence of smallpox during the eighteenth century can not be attributed to inoculation, for were this the case then the increase should have been apparent only after the introduction of inoculation; whereas, as a matter of fact, the increased prevalence was noted before that period. In Sweden, where inoculation was never practiced to any extent, the fall in smallpox after the introduction of vaccination was as marked as in any country. It has been, furthermore, alleged by the opponents of vaccination that the decline in smallpox was the result of improvement in sanitary conditions. While it may be conceded that such improvement tends to lessen the fatality of all infectious diseases, not excluding smallpox, it is totally inadequate to explain the striking and progressive decline in the prevalence and mortality from smallpox that followed the introduction of vaccination. Again, improved sanitation has caused a reduction of the general death rate of the country of only 9 per cent. Another noteworthy fact is that the decline in the death rate from smallpox has been limited entirely to persons below the age of 15. The percentage of mortality borne by children the subjects of measles, scarlet fever, and whooping cough does not differ materially from what it was a century ago. In order to exterminate smallpox we must have not only universal vaccination, but also its logical complement, universal revaccination. The only country of importance which has for any period carried out vaccination in this manner is Germany, and of all the important countries of the globe Germany is freest from smallpox. If there were in evidence no other statistical evidence of the efficacy of vaccination as a preventive measure against smallpox, the official figures of Germany since the enactment and provision for proper enforcement of the compulsory vaccination and revaccination act in 1874 would constitute adequate and convincing testimony.

So-Called Dangers of Vaccination

DR. WILLIAM M. WELCH: My attention has been given to the vaccination process in many thousand persons without the observation of a single death. In a number of instances of alleged death from vaccination I have found that death was caused by some disease entirely independent of the vaccination or by some virulent poison introduced through carelessness. Jenner demonstrated in the most conclusive manner that vaccination was prophylactic against smallpox and unattended with danger before he ventured to publish it to the world. He wrote: "I placed it on a rock where I knew it would be immovable before I invited the public to look on it." Whenever his instructions have been carefully observed in regard to the method of vaccination, nothing but good results have followed. In spite of the fact that vaccination was shown to possess complete mastery over smallpox, there arose a band of antivaccinationists who persistently maintained that the agent had no merit whatsoever, even insisting that if the practice were continued it would eventually transform man into a hideous monster presenting some of the characteristics of both the human being and the bovine animal. Of all the supporters of Jenner, Waterhouse was the most worthy, but, despite his great care, vaccination not infrequently fell into the hands of practitioners who not only disregarded his precautions, but violated every rule laid down

by Jenner, and vaccination was, therefore, threatened for a time with serious discredit.

Erysipelas is an infrequent complication in vaccinia. When pure virus is used, erysipelas is not liable to occur, except as the result of secondary infection. The alleged cases of leprosy are open to serious doubt. Whether or not it is possible to transmit tuberculosis through the agency of the bovine lymph is not yet determined. The danger, however, is not great, and may be obviated by having the vaccine virus taken from calves. Tetanus following vaccination is said to be unknown in France, Germany and other countries of continental Europe. Inquiry into a number of alleged cases in this country showed that the poison was not introduced simultaneously with the vaccination virus, but subsequently. I know of no case of tetanus after vaccination in which the tetanic symptoms appeared earlier than two weeks subsequent to vaccination. With the safeguards which at the present time surround the process of vaccination I feel perfectly safe in saying that if the individual be in normal condition, the operation conducted with surgical cleanliness and if the wound be guarded until the scab forms and falls off naturally, no dangerous consequences need be feared.

The Legal Aspects of Vaccination.

MR. HAMPTON L. CARSON: I shall confine myself strictly to the judicial aspects of the matter, leaving entirely out of view considerations of legislative discretion. The question is whether a statute of compulsory vaccination is within the constitutional power of the legislature, and whether it is an invasion of the personal liberty of the citizen. In Osler's "Practice of Medicine" it is stated substantially that a large unvaccinated population had grown up in Montreal in consequence of the prejudice against vaccination. One Pullman car conductor suffering from smallpox came from Chicago to Montreal, Feb. 28, 1885. Within the next ten months several thousand cases of smallpox occurred, and 3,184 persons died out of a population of 185,000; the number of cases of deformity, blindness, etc., resulting can not be estimated. A correspondent of mine asked whether it was not an invasion of the personal liberty of all the citizens of Montreal when one man was allowed to make thousands sick and deformed and kill 3,184 people simply because that one person was not vaccinated. The answer is plain. The Supreme Court of Pennsylvania has declared that compulsory vaccination "is not only justifiable, but a wise and beneficent exertion of the police power over the public health." Should a law be passed requiring general vaccination, no question can be successfully raised in the courts to challenge the authority of the statute.

Discussion on Smallpox.

DR. W. W. KEEN: In the case of the Pullman car conductor in Montreal, cited by Mr. Carson, I have no doubt that, when he developed smallpox, he was seized and incarcerated in a hospital until he was well or dead, and the question arises, Which of the two is the greater invasion of personal liberty, the infliction of the minor wound of vaccination or the seizure of a patient and the putting him into a hospital? The experience of the United States in its insular possessions illustrates graphically the value of vaccination. After the Americans took possession of Porto Rico, during the epidemic of smallpox, the government vaccinated over 800,000 persons, and in four months smallpox was abolished from the island. This was not due to a change in sanitation, but solely the result of vaccination. In the last annual report of the Chief of the Sanitary Department in the Philippines, the statement is made that in seven provinces of the islands there had been for a number of years an annual number of deaths of 6,000 from smallpox. That would mean 25,000 or 30,000 cases in all. In twelve months following the institution of vaccination in those seven districts there was not one death from the disease as against 6,000. Can there be a more magnificent illustration of the value of vaccination?

DR. B. FRANKLIN ROYER: The fear of vaccination because of its untoward action is largely the result of vicious literature. I have never seen a death from vaccination even when the patient was already carrying the load of a serious disease.

DR. M. CLAYTON THRUSH: At the recent meeting of the antivaccinationists in this city I took down verbatim some statements used to seduce the people to accept their views. A prominent Philadelphian, a cultured literary man, said that the only people who could take smallpox were those whose bodies were filthy. Other statements made were that people died from vaccination because they were inoculated with poison; if men would only think for themselves they could not help condemning vaccination, for a race of real men and women could not exist so long as poison was put into their veins. The lower birth rate in France was stated to be due to vaccination. The statement was made that the only thing that saved this country was immigration, the unvaccinated immigrant keeping up the birth rate. Boards of health were termed "boards of ill health." Vaccination was said to be advocated by medical men for what they got out of it. Lantern slides were exhibited showing cases of tuberculosis, syphilis and deformities of all kinds, and it was said that all were the direct result of vaccination.

DR. JAY F. SCHAMBERG: If there is one sound argument that antivaccinationists might urge, it is that vaccination is a procedure not absolutely unattended with risk; but neither is any other human procedure. The wound of vaccination, if maltreated, produces a bad result as would any other wound under bad treatment. I believe that most of the antivaccinationists are perfectly sincere in their convictions, but they close their minds to facts and logic, and I am not sure that they would be convinced by an actual demonstration of conditions. The great fault with which we physicians may be accused is that we have remained silent while a small but determined band of antivaccinationists spread literature among the people. Sensible people will accept the voice of the medical profession. Should there be legislative enactment in favor of the antivaccinationists, it is an absolute certainty that within two or four years laws would be enacted with increased vigor, much more widespread and positive in the requirement of vaccination. The first epidemic of smallpox would lead to this. We know that we can trust in the good sense of the American people.

DR. WILLIAM M. WELCH: During the epidemic of smallpox in our city from 1901 to 1904, of the more than 4,000 smallpox patients admitted to the Municipal Hospital, there was not a single patient who had been successfully vaccinated within five years and only very few who had been successfully vaccinated within ten years. Among the many students who came to the Municipal Hospital to study smallpox one was unvaccinated. Within two weeks of the time he came to study the disease he entered as a smallpox patient. A large number of infants were born in the hospital of mothers suffering from a mild form of varioloid. They were vaccinated on the very day they were born and the vaccination took while they were nursing from the mother's breast; yet they were perfectly protected throughout. Another instance was that of a family in which two of the children had been vaccinated on reaching the school age. The parents were antivaccinationists, and with their four other children were unvaccinated. When the smallpox broke out they were stricken and entered the hospital. The children who had been vaccinated came to the hospital with their parents. They slept with the other children, ate in the same room and had perfect health throughout the several weeks in the institution. In the after-care of the vaccination wound I do not like the use of the shield. The wound should be protected from the woolen underclothing by a perfectly clean piece of muslin, but the clothing must be loose so that the vaccine vesicle will not be disturbed. A wire screen is used sometimes with advantage to keep the clothing from the wound.

A resolution proposed by Dr. John B. Roberts was passed, to the effect that the committee of the state society on vaccination be requested to arrange for a conference between the committee and representatives of the transportation and manufacturing companies of Pennsylvania, having for its end a combined effort to prevent any change in the vaccination laws which would lessen the security against epidemics of smallpox.

Medicolegal

New Doctrine as to Liability of Charitable Corporations for Acts of Agents or Servants, with Classification of Typical Cases

The Supreme Court of New York, Appellate Division, Second Department, says that *Kellogg vs. Church Charity Foundation of Long Island* was an action against a charitable hospital corporation for damages for injuries to the plaintiff by being run into in the street by an ambulance of the defendant by the negligence of the driver. There was a dismissal of the case on the ground that charitable corporations are not liable for the negligence of their agents or servants, i. e., that the rule *respondent superior* (the superior must answer) does not apply to such corporations. The judgment should be reversed.

The question presented has been dismissed in a large number of cases in this country. The opinions and decisions are not only conflicting, but those which reach the same result do not agree on any rule of exemption from liability, and many of them rest on stated reasons or grounds which may well be challenged as fallacious. This court is free from the constraint of authority, for the question has not been settled in New York State, if, indeed, in any state. There seem to be no such cases in England.

For a correct understanding it is necessary to classify the cases. When that is done the limits of the question will be perceived, and it will also appear that its discussion in most of the cases was irrelevant.

1. There are a considerable number of them, such as *Corbett vs. St. Vincent's Industrial School*, 177 N. Y. 16, and *Benton vs. Boston City Hospital*, 140 Mass. 13, which serve as examples of the whole class, in which non-liability rests on the ground that the charitable institution was acting as an agency of sovereignty, and as such shared with it its immunity from being sued, as the familiar rule is. These decisions are promiscuously cited as applicable or as make-weights in cases where such agency did not exist, but obviously have to be left out of consideration in so far as the point actually decided in them is concerned; and the expressions in the opinions outside of that are not binding.

2. In the great bulk of the cases the negligence sued for was that of physicians or surgeons, or of nurses and similar employes, to patients in such charitable institutions. It may well seem strange that lack of liability in such cases should be so invariably put on the ground that the defendant for being a charitable institution was not subject to the rule *respondent superior*, which applies to the relation of master and servant in respect of torts (wrongful acts) to third persons by the servant; for such relation of master and servant does not exist as to third persons in the employment of physicians and surgeons, and the like (unless, to be sure, by contract). They are not servants, but in an independent employment; and with them must be classed, on the same principle, it would seem, their assistants, nurses and the like, in the things in which they necessarily act under their control and direction, instead of that of the employer.

3. We are now come, by process of elimination, to a precise test of whether, and, if so, in what cases, charitable institutions are exempt from the general rule *respondent superior* in respect of the torts of their servants.

(a) In many of the cases much is made of the fact that such institutions derive no profit or benefit, on the question of whether such rule applies, or, indeed, whether they can be held liable for any torts. But that exemption from liability does not arise from that fact is manifest from the undoubted liability of other similar institutions which derive no profit or benefit.

(b) In many if not most of the cases a ground for the non-liability for the torts (wrongful acts) of agents or servants of charitable institutions is that to pay damages for such torts would be a diversion of their funds from the trust purposes for which they are donated by the charitable, and

thus a contravention of the trust, and that as such institutions have no other funds it would be futile to allow judgments to be taken against them in such cases. But the opinions of the judges in these same cases almost invariably except cases where the agent or servant was incompetent and there was negligence in his selection; failing to take note that it would be as much a diversion of the trust funds to pay damages for the tort of negligence in selection as for any other tort. If the rule exist it must necessarily apply to all torts and in all cases. The only support for the argument that it does exist is found in the remarks of judges in certain rather old English cases, which were repudiated in later cases, and never had a direct application to actions of tort against charitable corporations such as are now common. The position of such a corporation in respect of its torts would seem to be the same as that of an individual carrying on similar charitable work with donated funds or with his own funds. I (the writer of this opinion) do not understand that if my servant, sent out by me on an errand of mercy or charity, negligently runs over one in the street, I am not liable for his act.

4. In what cases, then, is such a person or corporation freed from the rule of *respondent superior*? That rule exists only where the strict relation of master and servant exists out of which such rule grows, as we have already seen; it does not grow out of every case of one employing another. We must therefore come down to employes in respect of whom such relation of master and servant can exist, for it is useless to talk of the said rule in respect of employes who are not such servants—who are above their grade of service—as is the case of physicians and surgeons, and the like. This brings the question down to the ordinary run of servants, who are subject to the direction of the master at any moment in the manner and way of doing the work assigned to them, in general and in detail.

If a charitable institution is to be freed from the rule *respondent superior* a ground therefor must be found in law. If, then, in order to find a ground, we again resort to classification of the cases that have come into the courts, or that may arise, and separate torts of such servants against beneficiaries or patients of the charitable trust or institution, from torts against outsiders, a ground for such exemption may be perceived in respect of the former, but not of the latter.

The law may imply an intention on the part of the donors of the charitable funds that such funds shall be used for the charitable purpose only, and then imply an acquiescence in this intention by all persons who accept the benefits of the charity, and in that way spell out a waiver by such persons of any responsibility of the institution for the negligence or torts of its servants. If the courts want to exempt such institutions, this may be a tenable, though some may think a rather ingenious or far-fetched ground on which to do it. But no such acquiescence or waiver can be attributed to an outsider; to a person run over in the highway by the ambulance of such an institution by the negligence of its driver, for instance.

5. It is probably manifest enough at this stage that there are tort cases against such institutions which do not come within the foregoing classifications and discussion at all. Cases where the duty owed is one specifically cast on the defendant by law, and therefore incapable of being evaded or escaped by being delegated to any servant. Liability in such cases does not rest on the rule *respondent superior*, but on the narrower one that the duty is one for the defendant to perform itself, and into which the question of the negligence of servants does not enter. Of course if such institutions were to be held not liable for their torts or neglects in respect of duties which can not be delegated to servants, they would be held not liable for any torts of servants also for the reason of exemption, whatever it might be; but there is not any disposition to exonerate them from the former liability. For instance, the cases generally admit that they would be liable for negligence in the non-delegable duty of selecting competent servants or employes, of whatever grade or kind, as we have seen.

Current Medical Literature

Medical Record, New York

December 19

- 1 *Prognosis and Treatment of Deep Lesions of the Eye, Associated with Gout, Especially Secondary Acute Glaucoma. C. S. Bull, New York.
- 2 Local Anesthesia in Major Surgery, with Especial Reference to Abdominal Work. W. S. Schley, New York.
- 3 *Tuberculosis in Hospitals for the Insane. R. H. Hutchings, Ogdensburg, N. Y.
- 4 Etiologic Indications in the Treatment of Pneumonia. H. B. Knapp, Wilconisco, Pa.
- 5 Diagnostic Points in the Recognition of Perforated Gastric and Duodenal Ulcers. B. T. Tilton, New York.
- 6 Hospital Notes Taken During a Visit to Scandinavia. J. B. Boucher, Hartford, Conn.
- 7 Lymph Propulsion and Exchange. G. N. Jack, Buffalo.
- 8 New Method for Administering Ether as an Anesthetic. A. L. Soresi, New York.

1. Eye Lesions and Gout.—Bull says that while the association of grave lesions of the retina and chorioid are by no means of common occurrence, they seem to be increasing in frequency and are very destructive of vision. Such lesions particularly call for the cooperation of the family physician and the ophthalmologist. The patients are markedly gouty, past middle age, and leaders of an ultra strenuous life. The intraocular inflammation was never simultaneous with an acute arthritic attack but an intestinal attack always followed, in Bull's cases, and the urine showed marked excess of uric acid and high indican percentage, denoting faulty metabolism of fermentative intestinal origin. The uric acid acts not only as a toxic agent, but as a mechanical irritant. All the patients showed the well-known cardiovascular changes of chronic lithemia. Bull discusses the pathologic conditions, chief of which is increased blood pressure, which causes intraocular tension and consequent hemorrhages into the eye. The hemorrhages occur early in the disease, and are less likely to happen later when the vessels have become thickened by the disease. The great danger is the development of acute glaucoma, which is especially prone to occur in the hypermetropic or very astigmatic eye. The treatment and management of these patients varies with age, general condition, nature of lesion, and severity of type. Habits of life must be regulated—as much quiet as possible, moderation in eating and drinking, and curtailment of meat are necessary. Systematic exercise in the open air is called for. The moderate use of alcohol, if it is well diluted, need not be interdicted, for while alcohol dilates the peripheral blood vessels, it does not appreciably increase the blood pressure as tobacco does, which last must therefore be forbidden or reduced. Water should be taken frequently between meals. To reduce blood pressure, sodium nitrite, combined with a heart tonic, is useful. If the blood pressure is very high vasodilators must be administered slowly, and their effects on blood pressure, pulse rate, and sensations of the patient, carefully noted. Bull regards the last point as of even greater importance than the other two. Locally, pilocarpin in 0.5 per cent. or 1 per cent. solution should be used to draw the iris from the anterior chamber and to lower intraocular tension. Smoked glasses, not darker than tint No. 3, should be used. An iridectomy in an acutely inflamed eye requires general anesthesia, which in the general condition of the patient increases the danger. In 5 cases reported, iridectomy was avoided by the following methods: Under a strong solution of cocaine a paracentesis of the cornea was done and the aqueous humor allowed to flow out, drop by drop, from the anterior chamber, thus lowering the tension very slowly and avoiding danger of intraocular hemorrhage. Two leeches were applied to the temple until they dropped. A solution of eserine sulphate, one grain, and of pilocarpin, four grains, was instilled every hour, until, under the combined influence of the paracentesis and the use of miotics, the eye softened and the pain grew less. The eserine and pilocarpin are applied less frequently as the tension and pain subside, and hot applications to the eye are used, 20 drops of the fluid extract of *jaborandi* also being given internally three times a day.

3. Abstracted in THE JOURNAL, Nov. 28, 1908, p. 1897.

New York Medical Journal

December 19

- 9 *Treatment of Biliary Disease as Determined at Operation. H. Lilienthal, New York.
- 10 The Mistletoe. J. Knott, Dublin, Ireland.
- 11 Is Not the Tubercle Bacillus the Cause of Cancer? T. G. McConkey, San Francisco.
- 12 *The Anamnesis of Subjects of Exophthalmic Goiter. E. J. G. Beardsley, Philadelphia.
- 13 Hemorrhages into the Vitreous Body in the Adolescent. J. A. Gehring, New York.
- 14 Lumbar Puncture in Otology. S. Oppenheimer, New York.
- 15 Scarletinal Epidemic from Infected Milk Bottles. H. B. Wood, Philadelphia.
- 16 Effect of Mammalian Pituitary on Tetany After Parathyroidectomy and on the Pupils. I. Ott and J. C. Scott, Easton, Pa.

9. Biliary Disease.—Lilienthal says that the surprises of abdominal section occur in one's early days of surgery. Later, the surgeon learns not to be surprised at any condition, however interesting or unusual, within the peritoneal cavity. A quiet and safe uncertainty replaces the beautiful confidence and accuracy of youth, and cool and instant acceptance of conditions the unexpected shock of an overturned diagnosis. It is better not to operate unless there is full permission to do everything necessary for the welfare of the patient. Even a normal gall bladder, in the absence of gastric, duodenal, or renal disease, had better be removed if the symptoms are grave enough to warrant operation, and exploration results otherwise negatively. Pericholecystitis with suppuration may render unwise the necessary dissection for the removal of the gall bladder, even though its walls are thickened and other conditions for cholecystectomy are present. Temporary relief with later radical intervention is the wiser course. While, in the presence of icterus, the operation should not be stopped until the bile flows, the mere appearance of bile may not mean that we have done all that should be done. It may be necessary here, however, to be satisfied with palliative measures, performing a radical operation later. When, however, there is a distended gall bladder with sepsis, with or without icterus, the gall bladder may be emptied or removed and the entire operation concluded without show of bile, provided the patient is too weak to permit of persistent dissection. In the aged and extremely feeble, as little should be done as will suffice to overcome the present emergency. Never, except in the presence of collapse, should the abdomen be closed without examining the pylorus and pancreas. As to technic, Lilienthal advises the use of but little gauze packing, even of the temporary variety. In disease of the common duct the organ is more easily reached and manipulated when the gall bladder has been removed and the cystic duct drawn up by traction sutures. Finally, he advises leaving the traction sutures in place as a precaution against hemorrhage.

12. Abstracted in THE JOURNAL, October 31, 1908, p. 1543.

Boston Medical and Surgical Journal

December 10

- 17 *Subcutaneous, Cutaneous and Conjunctival Use of Tuberculin in Diagnosis. Technic, Reliability. Results of Animal Experimentation. F. T. Lord, Boston.
- 18 Progress of Tuberculosis in Children. Association. C. Floyd and H. I. Bow.
- 19 Catarrh (to be continued). L. C. Miller.
- 20 *Certain Evil Tendencies in Medicine and Surgery (concluded). M. H. Richardson, Boston.
- 21 *Hygienic Adjustable Bath Douche Hammock. G. L. Hagenburger.

December 17

- 22 Difficulties, Professional and Social, of the Early Recognition of Tuberculosis, and Suggestions as to the Remedy. E. O. Otis, Boston.
- 23 *Medical Inspection of Schools from the Standpoint of the Medical Inspector. J. T. Sullivan, T. J. Murphy and M. J. Cronin, Boston.
- 24 Epilepsy (to be continued). T. Flood, Boston.
- 25 Shall the Home Be Treated in the Home with a More Equitable Climate? Can Be Spent in the Open Air with Less Discomfort? I. Nitrate in H. Derby, Boston.
- 26 *The New Silver Salts as Treatment of Ophthalmia.
- 27 Chronic Intestinal Catarrh (concluded). L. C. Miller, Worcester, Mass.

17. Tuberculin.—Lord's comparative investigation of the subcutaneous, cutaneous, and ocular tests with tuberculin, including the results of animal experimentation, lead him to conclude that reactions with any one of the three tests, when

properly performed, indicate tuberculosis somewhere in the body. It may not be where the clinical data lead us to suspect it, and reactions may occur in the presence of latent, inactive as well as active, foci. This must be constantly in mind in applying the results of the test to individual cases. In patients suspected of tuberculosis, a positive test is only one more factor to be considered in establishing the diagnosis, while a negative test is of much greater value and goes far toward disproving the tuberculous character of the disease in question. Of the three tests, von Pirquet's cutaneous method appears to be harmless and reliable. It is probably more delicate than the conjunctival and subcutaneous tests and hence more often responds to latent, inactive and unimportant foci. So far as can be judged, there need be no hesitation in its application.

18. **Transmission of Tuberculosis in Children.**—Floyd and Bowditch discuss the influences favoring infection in the child, modes of infection, incidence, other factors influencing infection, types of disease, symptoms and signs, and diagnosis and treatment. In regard to prophylaxis they consider as important for the protection of children, the following measures:

1. Early notification of all births.
2. Better inspection and control of the cities' milk supply.
3. Systematic school inspection.
4. Housing reform.
5. Segregation of advanced cases.
6. Required notification of the disease.
7. Provision for the care of pulmonary tuberculosis in children.
8. Education of all school children on matters of general hygiene. Nearly all these measures are being enforced in Massachusetts and, as the forces of sanitation and education advance, the solution of the problem of tuberculosis is nearer.

20. **Evil Tendencies in Medicine and Surgery.**—Richardson concludes his article and suggests as a remedy thorough and persistent preparation for the practice of surgery, 1, by careful preparatory study; 2, by abundant clinical experience; 3, by the cultivation of a calm, judicial temperament and the accurate weighing of evidence; 4, by the exercise on every possible occasion of "control" over diagnosis; 5, by the determination always to consider both sides of a question; and 6, by assiduous preparation for the mechanical and technical steps of operative procedure.

21. **Bath Douche Hammock.**—Hagenburger has satisfied himself by experimenting with litmus paper, gauze, etc., placed in the vagina, that in a douche administered in the ordinary position, the fluid does not remain long enough to remove foreign substances and vaginal secretions, or to confer the real benefit of hot water (plain or medicated). He has therefore invented a hammock which can be attached to any bathtub enabling the patient to lie with the hips elevated so that a douche can be effectively administered, the vagina being made to act as a reservoir, and all soiling and discomfort of clothing or bedding avoided. It can also be used for high rectal enemata.

23. **Medical Inspection of Schools.**—Sullivan, Murphy, and Cronin describe the history of medical inspection of school children, which was first inaugurated in this country, in Boston, in 1894, the primary object being the detection of communicable diseases. They discuss the present working, and to remedy the inefficiency of the present system, make the following recommendations:

1. That the whole system of medical inspection, including physicians and nurses, be placed under the control of the board of health.
2. That a chief medical inspector be appointed, with deputies, if necessary, to have full authority over all, his function being to direct and control the work of the district inspectors and to see that each performs the duties required; also, through a supervising nurse, to direct the work of the nurses.
3. That the medical inspectors' powers be definitely determined and specifically set forth, and that a proper compensation be given.
4. That the nurse must be subordinate to the district medical inspectors and work only under their direction.
5. That a card system of records be devised, to be filled out by both physicians and nurses, one set to be kept at the schools and another set at the office of the chief medical inspector.
6. That the board of health and the school committee cooperate in bringing about such needed reforms.

The authors feel confident that a system carefully prepared along these lines would prove ideal.

26. **New Silver Salts.**—Derby believes that the good results obtained at the Massachusetts Eye and Ear Infirmary, where it was recently stated that silver nitrate had been replaced

by the newer salts, are due to the systematic and thorough cleansing of the eye, rather than to the remedies. As a result of experiments, his own faith in silver nitrate is unshaken, and he believes that it is the only agent that should be trusted in cases outside a hospital.

Lancet-Clinic, Cincinnati

December 12

- 28 Disturbances of the Stomach in Pulmonary Phthisis. F. L. Rattermann, Cincinnati.
- 29 *Incidence of Gall-Bladder Trouble and Gastric Ulcer. Differential Diagnosis, with Report of Cases. J. A. Lichty, Pittsburg.
- 30 *Recent Developments in Psychiatry. R. Reed, Cincinnati.

29. Abstracted in *THE JOURNAL*, Nov. 21, 1908, p. 1805.

30. **Psychiatry.**—Reed summarizes the history of the development of psychiatry and believes that, as in the case of infectious diseases, the best part of its future lies in the realm of preventive medicine. He suggests: first, an improvement in our public school system, greater individualization. "We have plenty of common schools for common children; why can not we have in every city uncommon schools for uncommon children?" Sane instruction as to temperance in alcoholic stimulants should replace the exaggerated statements of many school physiologies, which by receiving the lie from the children's own personal observation in their own homes lead to a reaction of sentiment. Second, the profession should make common cause with the propaganda against venereal diseases. Third, the author regards the spreading of habits of scientific thought and the extreme commercialism of everything modern, by their narrowing of the field for frank and innocent expression of emotion, as fruitful causes of insanity. The repression of emotions and natural instincts results in a source of "mental autointoxication," while their temperate expression favors a "psychic catharsis"; hence mental cults and other things tending to produce introspection are fruitful causes of insanity. He pleads for the establishment in all large cities of a hospital and clinic for the care of the acutely insane and those suffering from psychoses in process of development.

Medical Fortnightly, St. Louis

December 10

- 31 The Tolling Children. B. Holmes, Chicago.
- 32 *Fused Kidney (Horseshoe Kidney). B. Robinson, Chicago.
- 33 *Treatment of Eczema. R. L. Sutton, Kansas City, Mo.

32. Abstracted in the Society Proceedings in *THE JOURNAL*, June 6, 1908, p. 1931, and published in the *Illinois Medical Journal*, December, 1908.

33. Published in *Boston Medical and Surgical Journal*, Sept. 3, 1908.

Virginia Medical Semi-Monthly, Richmond

December 11

- 34 *Some Insect-Borne Diseases. G. L. Collins, Fort Monroe, Va.
- 35 *Sterilization of Habitual Criminals. C. V. Carrington, Richmond, Va.
- 36 Causes and Treatment of Frequent Micturition and Dysuria. C. S. Venable, San Antonio, Texas.
- 37 *The Minin Light. M. W. Peyser, Richmond, Va.
- 38 *Physiologic Action of Electrical Currents—Brief for Their Intelligent Use in Therapeutics. W. H. Wallace, Brooklyn.
- 39 *Value of the X-Rays in Chest Diagnosis. A. L. Gray, Richmond, Va.
- 40 The X-Ray in Treatment of Skin Diseases. T. W. Murrell, Richmond, Va.

34, 37, 38, 39. Abstracted in *THE JOURNAL*, Nov. 7, 1908, pp. 1624, 1625.

35. **Sterilization of Criminals.**—Carrington urges the sterilization of habitual criminals, and reports two cases so treated by him in the Virginia State Penitentiary. The first was a colored man, sentenced to a long term for a particularly brutal murder. He was transferred to the Colored Insane Asylum, Petersburg, where he killed a fellow inmate and nearly killed an attendant. He was banded to and fro between the asylum and the penitentiary, and was finally sterilized. He was very wild, strong and cunning, and a determined masturbator. To-day, six years after sterilization, "he is a slick, fat, docile prisoner, a trusty about the yard—cured by sterilization." The second case was that of a young degenerate, "a notoriously lusty, beastful sodomist and mas-

turbator," who is now a docile model prisoner. Carrington's method is to make a slight nick through the skin of the scrotum, near the pubis, and with a curved needle to take up the vas deferens and vessels and tie them all off. One catgut stitch closes the skin wound and a collodion dressing completes the operation.

Northwestern Lancet, Minneapolis

December 1

- 41 Surgical Aspects of Stomach and Duodenum. A. J. Oschner, Chicago.
42 *Gastric Ulcer. F. E. Walker, Hot Springs, S. Dak.
43 Early Treatment of Certain Injuries to the Eye. J. M. Robinson, Duluth, Minn.
44 Congenital Cyanosis, or "Blue Baby." O. A. Oredson, Duluth, Minn.

42. Gastric Ulcer.—Walker's experience during the past three years, in comparison with his previous operative experience and observation of that of others, leads him to conclude that better results are obtainable through absolute cell rest, rectal drainage, and dietetics, massage, baths and limited drug administration than from operation. Save in a few of the greatly aggravated cases of hemorrhage and those due to perforation, the treatment he now uses is as follows:

1. Rest. The patient is put to bed for from ten to twenty days. All food and drink, except sterilized water, are entirely withheld during this period. After the enforced fast period, the patient is given hard dry toast, well salted and thoroughly masticated, red beef, only the juice being swallowed, milk, soft eggs, custards and various broths. The diet is gradually increased, and at the same time the nutrient enemata are gradually withdrawn.

2. Drainage. As soon as the patient is placed in bed, calomel and sodium bicarbonate are given, gr. 1/40 (.0015) for 40 doses at intervals of 15 minutes. Every four hours, one dram of a saline laxative is administered in as much water as the patient can take, and is continued until the last dose of calomel is given. Twelve hours after the first dose of calomel the bowels are flushed with a large high normal saline enema, and this colon flushing is used every morning before any food is introduced into the rectum. Sixteen grams of castor oil are given the evening of the second day. No more cathartic is given per os.

3. Diet. Stomach diet after the enforced starvation has already been noted. Rectal diet:

First day:

	Gms.	
Beef tea (strong).....	128	2 oz.
Hydrochloric acid.....	60	10 m
Glycerite pepsin.....	8	5ii

Second day:

Milk, peptonized.....	96	5iiss
Claret.....	16	5ss
Two eggs.....		

Third day:

Malted milk.....	96	5iiss
Cream peptonized.....	32	5i

These enemata are given in rotation.

Strychnin, tincture of opium, spiritus frumenti, or other medicine is easily incorporated, as the condition from day to day requires. The method employed is to give the enemata through a No. 17 colon tube, inserted about six inches, at a very low pressure and occupying from 15 to 20 minutes. The enemata are given four times daily. Every morning the colon is flushed with a large enema of normal saline solution. Salt water sponge baths, at a temperature of 70 to 90 degrees are given night and morning, followed by gentle massage with oil. Every other day a thorough alcohol massage is administered. The teeth are thoroughly brushed several times daily, and the mouth is frequently washed with some mild antiseptic solution. Pain is controlled by packs, sinapisms, opium per rectum, or morphin hypodermically. Internally bismuth, milk of magnesia, lithium citrate, etc., are given by the mouth as required during the time in bed. Hemorrhage is treated by morphin and ice packs. Absolute mental and physical rest is imperative.

Philippine Journal of Science, Manila

September

- 45 *Health Conditions in the Philippines. W. S. Washburn, Manila.
46 *Prevention of Tropical Abscess of the Liver by Early Diagnosis and Treatment of the Presuppurative Stage of Amebic Hepatitis. L. Rogers, Calcutta, India.

- 47 *Filariasis and Elephantiasis in Southern Luzon. J. M. Phalen and H. J. Nichols, U. S. Army.
48 Distribution of *Filaria Nocturna* in the Philippine Islands. J. M. Phalen and H. J. Nichols, U. S. Army.
49 Palliative Treatment of Elephantiasis. A. Castellani, Colombo, Ceylon.
50 Further Filtration Experiments with Virus of Cattle Plague. E. H. Ruediger, Manila.
51 *Cases with Unusual Symptoms Caused by Contact with Some Unknown Variety of Jellyfish (Scyphozoa). E. H. H. Old, U. S. Navy.
52 *A Mosquito Which Breeds in Salt and Fresh Water. C. S. Banks, Manila.
53 Case of Infantile Beriberi with Autopsy Report. J. Albert, Manila.

45. Health in the Philippines.—Washburn protests against the "misleading articles" on the unhealthfulness of the Philippines, published by Dr. L. H. Fales, which appear to find their own refutation in the greatly reduced mortality rates. He considers the health of the 800 American teachers a fair indication of the general health of English-speaking civilians in the Philippines, and quotes the director of education as follows: "The statistics for the past year show an average of but six days' illness for each American teacher in the service. The general health of the force is excellent." With few exceptions the statistics of each succeeding year show a steady decrease throughout the islands of the inroads made by dangerous communicable diseases, of which tuberculosis, here as elsewhere, takes front rank. There appears to be greater abatement among civilians than among soldiers, of diseases due to intestinal parasites. Bubonic plague has disappeared from the islands, no cases having been reported for nearly two years. Since the completion of vaccination not a single death from smallpox has been reported in several provinces, where formerly thousands died annually. Out of 3,500,000 persons vaccinated, not one case of loss of life or limb and not one of serious infection has been reported. The working out of the leprosy problem has reached the stage, in the establishment of a leper colony, practically of assured final and complete solution. Contrary to the usual opinion, statistics seem to show a difference in health in favor of the white race as compared with the darker races. He publishes the simple health rules issued by the board of health on cards for general distribution, and refers to the great sanitary improvements contemplated, or under way, the establishment of hospitals and other institutions, etc., as pointing hopefully to the future sanitary conditions of the islands.

46. Tropical Abscess of the Liver.—An essentially similar paper by Rogers was published in the *Medical Press and Circular*, London, Oct. 28, 1908, and was abstracted in *THE JOURNAL*, Nov. 28, 1908, p. 1907.

47. Elephantiasis.—An essentially similar paper by Castellani appeared in the *British Medical Journal* Oct. 31, 1908.

51. Jellyfish Stinging.—Old reports nine cases, with one death, showing a regular symptom-complex following on the sting of a jellyfish. The complex included marked hysterical symptoms, with irritation of the mucous membrane of the nose, mouth, throat and eyes, incessant cough, restlessness, pain and nausea. Old believes that there is some absorbable substance present in the secretion of the fish, which is of a variety unknown to him. He thinks that some of the drownings may be explained in this way: Should the subject be far from shore or boat when stung, the sudden hysterical and depressant symptoms might overpower him, rendering him unable to reach his goal. In treatment Old uses alkaline solutions.

52. A Salt Water Mosquito.—Banks describes the *Myzomyia ludlowii* (Theob.), which in the Philippines breeds in both salt and fresh water. Altitude up to 1,500 meters has no appreciable effect on its development. There appears strong proof of its rôle as a transmitter of estivoautumnal malaria.

American Journal of Obstetrics, York, Pa.

November

- 54 *Solving the Problem of Obstetrics. E. G. Zinke, Cincinnati, Ohio.
55 *Arteriosclerosis of the Uterus. C. M. Rees, Charleston, S. C.
56 *Hysteria as the Surgeon Sees It. A. M. Vance, Louisville, Ky.
57 *Comparative Merits of Abdominal Celiotomy and Colpotomy in Treatment of Intrapelvic Abscess. W. S. Smith.

- 58 *Mobility of the Patient After Laparotomy. W. B. Chase, Brooklyn
59 *Ectopic Gestation with Viable Child; Report of Three Cases. N. O. Weiden, Pittsburgh, Pa.
60 *Extrauterine Pregnancy with Report of Cases. H. D. Hayd, Buffalo
61 *Ectopic Gestation. C. L. Bonifield, Cincinnati.
62 *Acute Pancreatitis. L. Frank, Louisville, Ky.
63 *Abscess of Gaertner's Canal. M. A. Tate, Cincinnati, Ohio.
64 *Present Status of Cesarean Section. C. C. Friedelick, Buffalo.
65 *Development of the Human Ovary During the First Eight Weeks of Pregnancy. H. Schwaiz, St. Louis
66 *Intraligamentous Fibroids. J. P. Eidmann, New York
67 *Uterine Fibromata Complicating Pregnancy. W. J. Gillette, Toledo, Ohio
68 Myoma of the Cervix Uteri. F. Reder, St. Louis
69 *Subdiaphragmatic Abscess. J. W. Keefe, Providence, R. I.
70 *Fevers of Intestinal Origin in Children. B. H. Bartley, Brooklyn.

54, 61 to 67, 69. Abstracted in THE JOURNAL, Oct. 24, 1908, pp 1456, 1457, 1458.

55. Abstracted in THE JOURNAL, Oct. 3, 1908, p. 1174.

56 to 60. Abstracted in THE JOURNAL, Oct. 17, 1908, pp. 1354, 1355.

70. Intestinal Fevers in Children.—Bartley says, that bacterial infection is the cause of many cases that we have heretofore regarded as acute or chronic intestinal indigestion seems probable by the following:

- 1 The predominance of certain bacteria in the microscopic field which gives it a characteristic appearance
- 2 The presence in culture made from the stools of a great number of certain kinds of organism
- 3 The penetration of bacteria through the damaged mucosa and their presence in the blood and urine.
- 4 The contagiousness of these cases.
- 5 The appearance of such cases in epidemics, in hospitals and nurseries. The contagious nature of certain diarrheal diseases in babies is now well known. The contagion can be carried by flies, by soiled linen, by nurses' hands or by toys soiled by the discharges. In infant hospitals and nurseries these cases should be isolated and flies excluded from the room

American Journal of Physiology, Boston

November

- 71 *Experiments on Absorption of Fat from an Isolated Loop of Small Intestine in Healthy Dogs. O. H. Plant, Galveston, Texas
72 Hydrolysis of Fish Muscle. T. B. Osborne and F. W. Heyl, New Haven Conn.
73 *Blood Pressure and High Altitudes. D. C. Schneider and C. A. Hedblom, Boulder Colo.
74 *Acid Closure of the Cardia. W. B. Cannon, Boston
75 Nature of the Conduction of Nerve Impulse. W. Sutherland
76 *Comparative Study of the Vasomotor Reflexes. W. T. Porter and R. Richardson, Boston

71. Absorption of Fat.—Plant experimented with fats, soaps and fatty acids as to their absorption from a loop of intestine. He reaches the following conclusions:

- 1 Bile salts greatly increase the absorption of fats from a mixture that contains free fatty acid or soap. They only slightly increase the absorption of neutral oil.
- 2 Solutions of soap, in the absence of other fat, are absorbed from a loop of intestine in greater percentage than emulsified fats, this is also true of fatty acid dissolved by bile salts.
- 3 Neutral oil can be absorbed without the action of either bile or pancreatic juice from a loop of intestine, when both these secretions are excluded. Under such conditions the neutral oil becomes markedly acid in reaction.
- 4 Taken as a whole, the results of these experiments favor the theory that fats are absorbed in solution rather than as emulsified fats.

73 Blood Pressure.—Schneider and Hedblom review the scanty literature on the influence of altitude on blood pressure and give their own observations. The pressure readings were taken with Dr. Langer's improved sphygmomanometer. The authors embody their results in the following conclusions:

- 1 A considerable elevation in altitude tends to lower systolic and diastolic blood pressure and to increase the rate of heart beat.
- 2 The fall in systolic pressure is slightly greater and more certain to occur than the fall in diastolic pressure.
- 3 A rise in diastolic pressure occurs in some individuals.
- 4 The influence of such factors as psychical states, eating, and exercise may obscure the influence of altitude on the blood pressure.
- 5 The fall in blood pressure and increase in heart beat are most marked in the early part of the residence at the higher altitude.
- 6 On a prolonged stay at high altitude the heart rate probably returns more nearly to the normal than the blood pressure.
- 7 High altitudes do not affect to the same degree the blood pressure of all individuals.
- 8 Small elevation in altitude does not appreciably influence the blood pressure.
- 9 Those individuals most affected by high altitude seem to sustain the greatest fall in systolic blood pressure and the greatest acceleration in the rate of heart beat.
- 10 The heat of the summer season probably accelerates the pulse rate.

74. Closure of Cardia.—Cannon finds that the cardia is kept closed by the presence of acid in the stomach, and that neutralization of the acid leads to regurgitations which cease when the stomach contents become normally acid.

76. Vasomotor Reflexes.—Porter and Richardson distinguish between fundamental and accessory functions in living tissues. The former are of ancient origin, and are in the main alike in all the higher animals, while the accessory functions vary widely in different species. They bring, in this paper, evidence that the blood pressure is to be classed with the fundamental phenomena. They find that the reflex rise of blood pressure on stimulation of the sciatic and the brachial nerves is quantitatively almost the same in the rabbit, cat, guinea-pig, rat and hen—animals differing greatly in structure. It is improbable that animals so diverse as those here stimulated would give quantitatively the same response were not the maintenance of blood pressure, like the maintenance of body heat, a fundamental phenomenon developed to the same high efficiency in many, perhaps in all, warm-blooded animals. The experiments afford good ground for concluding that the results of animal experiments on blood pressure, and on the vasomotor system generally, can be applied with confidence to human pathology and therapeutics.

American Medicine, New York City

November

- 77 *Temporal Bone the Diseases to Which It Is Subject, Especially Otitis Media. F. D. Wallace, Pueblo, Colo.
78 Therapeutic Exercises. H. W. Frauenthal, New York.
79 Indicanuria. W. G. Morgan, Washington, D. C.
80 *The American Climate and the Northern European. A. O'Malley, Philadelphia
81 Alcohol in the Tropics and American Schools of Tropical Medicine. C. E. Woodruff, U. S. Army
82 Are We Being "Doctored" to Death? H. S. Baketel, New York
83 A Fundamental Condition Simulating Duplication of the Disc. J. W. Sheret, Kansas City, Mo.
84 Recent Literature on Dermatology and Syphilis. F. C. Knowles, Philadelphia

77. Therapeutic Exercises.—Frauenthal insists that deep breathing, as a fine art, has to be taught. He urges the importance of adding breathing exercises to the therapeutic armamentarium, and concludes by emphasizing that the index to vital force is lung development, and in harmony with it go the development of the heart, and the more perfect conditions in the liver, kidneys, spleen, etc. He is opposed to muscle bulk and muscle building, also to violent exercises and heavy lifting, because their ultimate results to the individual are bad. Work should be done by the individual working alone, and not in classes.

80. Climate and Europeans in America.—O'Malley's observations show that the climate in the United States is very trying on people who come from northern Europe, and the excessive sunlight is the detrimental factor. The conclusion is that the people of northern European origin should in America avoid the sun glare as much as possible. Their vacations should be spent in woods, not in the light of the seashore, and they should sleep as long as possible to restore nervous strength. American physicians have long known that nervous patients do badly at the seashore, but they were not aware of the cause of this phenomenon. We should plant shade trees in all our cities, and remove enough of the pavement to let these trees grow. Many old families in New England towns owe not a little of their longevity to their shade trees. Our healthiest folk are in the northwest where there are most clouds. We must get away from the erroneous traditional opinion, brought here from cloudy northern Europe, that sunlight is good for us: in measure it is, in excess it is fatal.

Chicago Medical Recorder

November

- 85 *Lumbar Puncture and Blood Analysis in Diagnosis and Treatment of Meningococcic and Tuberculous Meningitis. J. F. Hultgen, Chicago
86 *Diagnostic Considerations in the Surgical Affections of the Spinal Cord. J. Grinker, Chicago
87 Hematuria. C. J. Drucek, Chicago
88 *Eyes for the General Practitioner. A. Weicheit, Barrington, Ill.
89 The Ear Polyp: Its Clinical and Pathologic Manifestations. L. J. Goldsch, Baltimore
90 The Health Operation. C. H. Long, Chicago
91 The Real Tuberculosis Question. J. Burke, Manitowoc Wis.

85. Lumbar Puncture.—Hultgen discusses lumbar puncture in regard to meningococcic meningitis, and thinks that in every case in which meningeal symptoms are present, even to a minor degree, we should at once perform lumbar puncture. He states that he knows of no contraindications. He gives a tabular illustration of the information to be gained from lumbar puncture in normal conditions, meningococcic meningitis, and tuberculous meningitis, respectively. In cerebrospinal meningitis it seems reasonable to him to prescribe repeated lumbar puncture, for it removes at least some of the toxic infectious material, and simultaneously diminishes or removes cerebrospinal pressure. In tuberculous meningitis, theoretically at any rate, the prognosis need not be hopeless. Many of the patients die from mechanical effects, not from its toxic sequelæ. The time will come when, with the aid of early lumbar puncture, we shall be able to differentiate between hopeless and hopeful cases. Finally, he reports a case of lumbar puncture with recovery, which, in the absence of positive findings in the fluid and of a tuberculous history in the family, he prefers to regard as one of recovery from serous meningitis.

86. Abstracted in the Society Proceedings in THE JOURNAL, June 27, 1908, p. 2152, and published in the *Illinois Medical Journal*, October, 1908.

88. Eye Work for the General Practitioner.—Weichelt discusses various eye symptoms that are not sufficiently appreciated by the general practitioner. Aside from local disease or from being a part of a general condition, swelling and puffiness of the lids tell us of anemia, cerebral thrombosis or renal edema: they are often diagnostic of measles, appear in variola and erysipelas, and are the warning indicator in the administration of arsenic and iodid. A sty may show eyestrain, or digestive or genital disorders. Blepharitis may lead us to suspect anemia or a catarrhal or strumous diathesis. Duskiness of the lids and under the eyes is seen in pregnancy, sexual abuse, certain menstrual disorders, fatigue, etc. Winking spasm occurs in chorea, hysteria, or tic douloureux. Lagophthalmos may be due to hysteria, facial paralysis or exophthalmic goiter. We look for oculomotor disturbances in meningitis, skull fracture, or intracranial hemorrhage. The pearly appearance of the sclerotic often points to phthisis, anemia, nephritis or Addison's disease, while the significance of a yellow eyeball is familiar to all. Conjunctival congestion, not due to local disease, may be present in typhus fever, meningitis, facial paralysis, neuralgia of the fifth nerve, and sometimes after full doses of potassium iodid. Subconjunctival hemorrhage appears in epilepsy, fracture of the base of the skull, Bright's disease and organic heart lesions. We have all looked for the "fishy" or puckered conjunctiva of approaching dissolution. The cornea gives us the arcus senilis of arteriosclerosis, gout, atheroma, chronic nephritis or syphilis. Iritis may help us to clear up a doubt in rheumatic affections. Pupillary symptoms are too well understood to be especially mentioned. Every general practitioner should know enough of the afflictions belonging to the domain of the ophthalmologist to realize when reference to a specialist is necessary. He should be able to use the ophthalmoscope well enough to detect anything abnormal in the fundus. Refraction is a part of ophthalmology on which the country doctor in particular might encroach. With some post-graduate study, he is infinitely better qualified to fit glasses than are clerks, druggists, and so-called doctors of optometry, who have usurped a part of the doctor's rights and privileges—and fees—with little or no study.

Washington Medical Annals

November

- 92 Applied Electrophysiology in Electrotherapeutics. F. B. Lishop, Washington, D. C.
- 93 *The Medical Witness in Lunacy Cases. P. C. Hunt, Washington, D. C.
- 94 *Chronic Neuralgia; Its Causes and Cure. R. Reyburn, Washington, D. C.
- 95 Case of Epithelioma of Uterus. D. S. Lamb, Washington, D. C.
- 96 Differential Diagnosis of Functional from Organic Forms of Motor Disability. T. A. Williams, Washington, D. C.
- 97 Adipocere, Ninety-six Years After Death. D. S. Lamb, Washington, D. C.

93. Medical Witness in Lunacy Cases.—Hunt discusses the present conditions affecting the medical witness in inquisitions in lunacy, in criminal cases, and in testamentary cases. He makes the following suggestions in regard to inquisitions in lunacy: The present law should be so altered that a patient should be detained at the hospital for care and treatment; if the patient's mental condition is such that he is unable to advise counsel, or if he is suffering from an acute psychosis that would be aggravated by the court proceedings, he should not appear. Also, if temporary commitment were to be extended from the present thirty-day limit to ninety days, during which time legal proceedings could be instituted, and the matter brought to the attention of the court, much good could be accomplished. In criminal cases, in his opinion, a law should be framed providing that a commission, consisting of the attending physician to the United States Jail, the superintendent of the Government Hospital for the Insane, and one or more alienists, should be appointed by the Supreme Court of the District of Columbia (or state) to examine every case in which the defendant is under serious charges, and that a written report be made to the presiding justice concerning the defendant's mental condition. If the defendant objects to this examination it should take place after conviction and before the prisoner is sentenced. In examining an alleged insane person a medical witness should provide himself with writing materials and take down the person's statements in the person's own words and his presence, at the time the words are uttered. Not only is this the only way of insuring the accuracy of the report, but it gives the examiner the right, which otherwise he could not have, of consulting his notes in court. The things contained in this report should be facts, not inferences from facts. Hunt points out that in examining the testamentary capacity of a person the physician should insist on seeing him alone, and making sure that he is free from the influence of drink, drugs, etc. He cites an eminent English authority on wills for the assertion that no will has been upset where a reputable physician has witnessed it after examining the testator's state of mind, and an agent of repute has drawn it up, provided neither of them takes any benefit under its provisions. He advises physicians to make an intending testator go carefully over the particulars of what disposition of his estate he wishes made, without prompting, suggestion or leading question, twice, with a quarter of an hour's interval between the two statements; to ascertain, if possible, from him if he had intended before his illness to will his property as proposed, and for how long a time before; and to try to get independent testimony from others on this point. In examining persons it is desirable to be perfectly impartial, to make no suggestion as to the propriety of the act or the settlement to be made, and on no account to influence the testator as to the disposition of his property.

Regarding the "hypothetical question," Hunt says that it is valid and legal, and will probably continue to be used; but if the witness will insist on having all the obtainable facts on which this question is based placed before him, including the person, if possible, whose mental state is in question, and, by conscientiously endeavoring to sift the chaff from the wheat, will compel the hypothetical question to be built on the foundation of truth, the alienist's reputation and power for good in the community will be greatly enhanced, and he will gain the respect of the judge and the confidence of the jury.

94. Neuralgia.—Reyburn holds that chronic neuralgia is due to a purely physical cause, viz.: increased blood pressure, and that all the remedies which relieve neuralgia act either as the anodynes do, by benumbing the sensory filaments of the nerve or diminishing the force of the circulation, or by aiding the blood vessels to resist the pressure on them. In addition to the usual remedies he has given ergot in full doses and on theoretical grounds with excellent results. It is especially useful in the chronic neuralgia of overfed women in the higher walks of life, who take little or no exercise. A fluid dram three times a day, with forced exercise and diminished food supply, is very efficient.

Journal Michigan State Medical Society, Detroit

November

- 98 *Cyclodialysis Versus Iridodialysis. P. J. Livingstone, Detroit.
 99 *Distinction Between Hysteria, Neurasthenia, Hypochondria and Simulation. C. D. Camp, Ann Arbor, Mich.
 100 *Preliminary Report on the Use of the Tubercle Residue of V. C. Vaughan in Surgical Tuberculosis. J. W. Vaughan, Detroit.
 101 Recent Progress in Medicine and Surgery. H. E. Randall, Lapeer.
 102 Puerperal Septicemia, Septic Gall-Bladder, Ectopic Gestation and Syphilis. F. J. Tibbals, Detroit.

98. Cyclodialysis.—Livingstone discusses the source of pressure in the eye, namely, the secretion from the blood stream, and considers that its source lies chiefly if not wholly in the ciliary portion of the uveal tract. He describes the operation of cyclodialysis as reported by Heine, and considers that the real indications for cyclodialysis are found in those cases in which iridectomy is not only difficult but dangerous.

99. 100. Abstracted in *THE JOURNAL*, Aug. 29, 1908, pp. 784, 785.

Bulletin American Academy of Medicine, Eaton, Pa.

December

- 103 *Report of the Committee on Education of the General Public in Medical Matters. E. Jackson, Denver, Colo.
 104 *Hygiene in Public Schools. H. C. Putnam, Providence.

103, 104. Abstracted in *THE JOURNAL*, July 25, 1908, pp. 339, 340.

Laryngoscope, St. Louis

November

- 105 Roentgen-Ray Examination of the Accessory Nasal Sinuses. E. W. Caldwell, New York.
 106 *Surgical Principle Essential to the Cure of Frontal Sinus Empyema. J. F. Barnhill, Indianapolis.
 107 Operative Treatment of Suppuration of the Frontal Sinuses. A. Jansen, Berlin, Germany.
 108 Variations in the Anatomy of the Frontal Sinuses. J. P. Tunis, Philadelphia.
 109 Two Unusual Frontal Sinus Cases. J. P. Brown, Toronto, Canada.
 110 Relation of Pathologic Changes in the Accessory Nasal Cavities to Diseases of the Eye. C. R. Holmes, Cincinnati.
 111 Neuroses of the Nose. C. P. Grayson, Philadelphia.
 112 New Flap in the Radical Operation. G. A. Leland, Boston, Mass.
 113 Case of Probable Persistent Angioneurotic Edema of the Larynx and Soft Palate. T. H. Halsted, Syracuse, N. Y.
 114 Conservative Turbinectomy. J. A. Watson, Minneapolis, Minn.

106. Published in the *Annals of Rhinology, Otolaryngology and Laryngology*, September, 1908.

Progressive Medicine, Philadelphia

December

- 115 Diseases of the Digestive Tract and Allied Organs, the Liver and Pancreas. D. L. Edsall, Philadelphia.
 116 Diseases of the Kidneys. J. R. Bradford, London, Eng.
 117 Surgery of the Extremities, Tumors, Surgery of Joints, Shock, Anesthesia and Infections. J. C. Bloodgood, Baltimore.
 118 Genitourinary Diseases. W. T. Belfield, Chicago.
 119 Practical Therapeutic Referendum. H. R. Landis, Philadelphia.

Colorado Medicine, Denver

November

- 120 Technic of Bier's Hyperemia. H. M. Cohen, Denver, Colo.
 121 Surgical Treatment of Chronic Constipation. H. Heath, Denver.
 122 Somnoform. C. G. Parsons, Denver, Colo.
 123 Faith. C. A. Hadsell, Cedaredge, Colo.

Northwest Medicine, Seattle, Wash.

November

- 124 Rational Treatment of Congenital Club Foot. J. C. Shapps, Butte, Mont.
 125 Surgical Treatment of Paralytic Deformities with Plea for Their Prevention. E. A. Rich, Tacoma, Wash.
 126 Head Injuries. W. H. Axtell, Bellingham, Wash.
 127 International Congress on Tuberculosis. B. S. Paschall, Seattle, Wash.

Iowa Medical Journal, Des Moines

November

- 128 Supports of the Uterus. G. E. Decker, Davenport, Iowa.
 129 Treatment of Retrodeviations of the Uterus. C. Wahrer, Fort Madison, Iowa.
 130 Uterine Hemorrhage. B. S. Walker, Corydon.
 131 Operative Conditions of the Menopause. E. E. Dorr, Des Moines.
 132 Three Cases of Leukemia. W. L. Bierring, Iowa City.
 133 Tuberculosis of the Joints and Its Modern Treatment. J. Rudis-Jelinsky, Cedar Rapids.

Alabama Medical Journal, Birmingham

November

- 134 Typhoid.—Etiologic Factors. R. B. Harkness, Birmingham, Ala.
 135 Adenoids in Young Adults. C. Fox, Birmingham, Ala.

- 136 Acute Gastric and Duodenal Dilatation Treated by Gastrojejunostomy, with Recovery. G. Torrance, Birmingham, Ala.
 137 Medical Expert Testimony from a Judicial Standpoint. L. H. Lee, Montgomery, Ala.
 138 Clinical Examination of Urine and Gastric Juice by the General Practitioner. C. F. R. Weiss, London, England.

Military Surgeon, Carlisle, Pa.

November

- 139 Relation of the Military and Naval Forces of the United States to Public Health. W. C. Rucker, Public Health and Marine-Hospital Service.
 140 Work of the Board for the Study of Tropical Diseases in the Philippines. H. J. Nichols and J. M. Phalen, U. S. Army.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

December 5

- 1 *Use and Abuse of the Curette. G. E. Herman.
 2 Pregnancy Complicated by Fibromyomata of the Uterus. F. W. N. Haultain.
 3 Puerperal Eclampsia. J. Lytle.
 4 *Physiology of the Fallopian Tube. J. T. Shirlaw.
 5 Uterine Arteriosclerosis. J. Pearse.
 6 Axis-Traction Forceps. J. R. Purdy.
 7 *Some of the Effects of Excessive Smoking. J. D. Mann.
 8 Case of Oostitis Deformans. S. White.
 9 Case of Cancer of the Right Breast "Cured" by the Cardigan "Cancer Cures." J. L. Thomas.
 10 Syphilis Communicated by Industrial Implements. S. Snell.

1. The Curette.—Herman says that there are three apparently widely accepted reasons for using the curette, namely: (1) Curetting merely because the patient is anesthetized for some other operation, the curetting being apparently supposed to be in some way beneficial to a healthy uterus. (2) Curetting a uterus which has been infected with pathogenic microbes, with the idea that it is possible to scrape away the whole of the infected tissue. (3) Curetting neurasthenic patients for pain, without excessive hemorrhage, the pain being supposed to be due to endometritis brought about by variations in the shape and size of the uterus, all these changes never having been shown to be more pathologic than variations in the size of the lobule of the ear. Curetting for such reasons as these seems to him so useless that it deserves to be described as an abuse. He emphasizes the fact that curette and curettage, Anglicized, means simply scraper and scraping, which is a true description of the purpose. The use of the scraper is to remove new growths, either as a treatment or for diagnosis. In any case of hemorrhage severe enough to weaken the patient, for which bimanual examination shows no adequate cause, the proper treatment is to dilate the cervix and explore with the finger the uterine cavity. If nothing is found, the endometrium may be scraped and the scrapings examined microscopically; but there is no justification for repeated scrapings. Particularly, repeated scrapings to relieve pain constitute an abuse of the curette. The use of the scraper is to detach something that is causing trouble, not to relieve pain.

4. Physiology of the Fallopian Tube.—Shirlaw emphasizes the following points: The probability is that when a pregnant ovum remains in the tube, this occurrence is due to one of two things or to a combination of the two; either there has been too little secretion, or there has been a diminution in the lashing movement of the cilia from a previous salpingitis.

7. Excessive Smoking.—Mann discusses the substances found in tobacco smoke, and concludes that nicotine is its sole potential poisonous constituent, inasmuch as the other poisonous bodies, including the pyridin bases, are equally present in the smoke from nicotine-free tobacco, the use of which by healthy non-smokers was found not to give rise to the circulatory disturbances caused by smoking ordinary tobacco. Nicotine may be absorbed through the unbroken skin. Mann particularly condemns the habit of holding the remains of a moist cigar or cigarette in the lips after it has gone out. He discusses the effects in two stages, the early stage of functional disorder and the later stage of organic disease. He concludes as follows: It is obvious that with all physiologically active substances the question of degr-

is largely determinative of the results produced by an agency that is capable of affecting the health. Most men, if they choose to smoke, can do so within certain limits without injuring their health; some men can exceed such limits with apparent impunity. The extent of the limitation must be determined by each man for himself, and, if he is wise, he will keep well within the borderline and will hold to his resolution. Here lies the difficulty: the growth of a habit overrides discretion. The habit of excessive smoking is more insidious in its development than that of excessive drinking, for the results are much less obvious. An alcoholic may be appealed to by his friends or admonished by those in authority; this rarely happens to the adult smoker, unless he consults his doctor about "indigestion and palpitation" and admits that he smokes to excess; then probably the necessary warning will be given.

Lancet, London

December 5

- 11 Latent Persistence and the Reactivation of Pathogenic Bacteria in the Body. L. S. Dudgeon.
- 12 Treatment of Syphilis by Arylarsonates. F. J. Lambkin.
- 13 *The Common Cold: Its Pathology and Treatment. (Concluded.) R. W. Allen.
- 14 *Prophylaxis in Acidosis Following Anesthesia. F. H. Wallace and E. Gillespie.
- 15 Aneurism of the Anterior Cerebral Artery. A. S. MacNalty.
- 16 Bacterial Contamination of Milk; the Connection Between Flies and Epidemic Diarrhea. J. T. C. Nash.
- 17 Case of Traumatic Exophthalmos. D. Ranken.
- 18 Extension of a Pleural Effusion Toward the Sound Side in a Still-born Child. R. D. Keith and A. Keith.

13. The Common Cold.—Allen summarizes his articles, concluded in this issue, as follows: 1. It has been shown that there are at least five organisms capable of the production of an attack of acute nasal catarrh, viz.: (a) the *Bacillus influenzae*; (b) the *Bacillus septus* [septicus?]; (c) Friedländer's bacillus; (d) *Micrococcus catarrhalis*, and (e) *Micrococcus paratetrigenus*. 2. These may be present in the nasopharyngeal space in a certain percentage of cases which exhibit no pathologic features; increase of virulence and lowered resistance of the tissues may then light them up into activity. In other cases the infection is one from without. 3. Each organism produces its own type of cold, and a differential diagnosis of the organism is possible from a consideration of the clinical features; this is more difficult should the infection be a multiple one. 4. This differential diagnosis is of considerable value both in prognosis and in treatment. 5. Chronic nasal catarrh is probably always due to infection by the bacillus of Friedländer, unless the Eustachian tube and middle ear be involved by the *Micrococcus catarrhalis*; chronic tracheal catarrh to infection by the *Micrococcus catarrhalis* or *Micrococcus paratetrigenus*, to which secondary infection by staphylococci, streptococci, pneumococci, and other pathogenic organisms may be superadded. 6. For infection, local defect of opsonin, and for cure, increase of opsonin, are probably necessary conditions. 7. By means of the injection of the corresponding bacterial vaccines an attack of acute cold due to any given organism or organisms can be considerably shortened and complications be probably prevented. 8. In a similar manner chronic infections may be cured. 9. By injections of the vaccines of the several organisms in appropriate doses and at appropriate intervals considerable, if not complete, immunity against future attacks of acute cold may be secured. In those who are very susceptible and fall victims to every epidemic that may occur, the best procedure probably is systematic immunization every four to six months against all the "cold" organisms, and special immunization against the particular organism or organisms which may be responsible for the appearance of subsequent epidemics against which protection is desired.

14. Acidosis Following Anesthesia.—Wallace and Gillespie conclude their paper as follows: 1. That so far as prophylaxis by drugs is concerned glucose has a much greater power in controlling the acetoneuria than sodium bicarbonate. 2. That the secondary vomiting is in direct relation to the amount of acetone produced. 3. That anesthetics should be given by an open method. 4. That in all cases of vomiting lasting over 12 hours the stomach should be washed out with a solution of sodium bicarbonate, leaving some fluid in that organ.

Medical Press and Circular, London

November 25

- 20 Influence of Diathesis on Causation and Treatment of Diseases of the Eye. A. M. Ramsay.
- 21 Hygienic Principles and Mental Efficiency. T. S. Clouston.
- 22 Pulmonary Actinomycosis, Its Great Relative Frequency. N. Bridge.
- 23 *Heredity in Diseases of the Nervous System. Sir W. Gowers.

23. Published in the *Lancet*, Nov. 21, 1908, and *British Medical Journal*, Nov. 21, and abstracted in *THE JOURNAL*, Dec. 19, p. 2189.

Clinical Journal, London

November 25

- 24 Lead Poisoning. F. M. Sandwith.
- 25 Lenhartz Treatment of Gastric Ulcer. W. L. Brown.

Quarterly Journal of Medicine, London

October

- 26 Extensive Atheroma and Dilatation of the Pulmonary Arteries, without Marked Lesions, as a not Very Rare Cause of Fatal Cardiac Disease in Bengal. L. Rogers.
- 27 Complete Heart Block. A. M. Gossage.
- 28 *Rheumatic Myocarditis. C. Coombs.
- 29 Mongolism and Its Pathology; an Analysis of Eight Cases. W. B. Hill.
- 30 *Medical Aspects of Pyelitis in Pregnancy. E. Ward.
- 31 Polycythemia, Erythrocytosis and Erythremia. F. P. Weber.

28. Rheumatic Myocarditis.—Coombs summarizes his article as follows: Macroscopic Myocardial Changes.—(1) Dilatation of both ventricles is constant, and often of considerable degree. The auriculo-ventricular orifices share in the stretching. (2) Hypertrophy of both ventricles is usually present, and in many instances without any obvious mechanical cause. (3) The naked-eye appearance of the cardiac muscle is but little altered as a rule.

Histologic Changes: (1) The parenchymatous cells are the seat of a fatty change, which is most pronounced in the wall of the left ventricle, particularly in the papillary muscles and beneath the pericardium. No other important change has been constantly noted in the cells themselves. (2) In the stroma, nodules are formed consisting entirely of large cells, many of which are multinucleate, and which seem to be fibroblastic in nature. In the formation of these nodules other cells play quite a subordinate part. They develop especially in the neighborhood of arteries and arterioles; the left ventricle is far more affected than the right, particularly near the root of the aorta and the mitral ring, and at the apex near the interventricular septum. Few nodules are found in the septum itself, and the same applies to the papillary muscles. (3) Foci of leucocytosis, chiefly polymorphonuclear, are also seen. These are pericapillary, and are found especially in the papillary muscles. (4) Various arterial inflammations occur, especially a nodular periarteritis. Aortitis is generally present. (5) In hearts which have passed through a stage of active carditis certain cicatricial lesions of the myocardium remain to mark the sites of previous nodules.

Interpretation of the Above Changes: (1) The nodules are inflammatory and probably represent a reaction of the connective tissues at the actual points of infection. They appear to be characteristic of rheumatic as opposed to other forms of carditis, and changes histologically similar are seen in rheumatic endocarditis and pericarditis and subcutaneous rheumatic nodes. Their close relation to the arteries is a further proof of the fact that in rheumatic carditis the heart is invaded by the coronary avenues. (2) The areas of leucocytosis represent edema due to passive venous congestion. (3) Toxemia accounts for, no doubt, the greater part of the fatty metamorphosis; but it must be remembered that a similar change occurs as the result of chronic venous congestion and of hypertrophy, both of which are seen in most cases of rheumatic carditis. (4) Ventricular dilatation is to be ascribed to muscular atony under the influence of toxemia. It is greater in degree than the histologic changes would lead one to expect. The hypertrophy of the ventricles, occurring, as it does sometimes, without obvious cause, may also be referable to the "direct" action of some toxin. There is some evidence to support the view that the poison produces this effect by inducing myocardial overaction. The myocardial lesions occurring in rheumatic carditis are of so special a kind as to lend definite support to the conception of a specific rheumatic infection.

The Influence of the Foregoing Lesions on the Cardiac Functions: (1) The physical signs characterizing the rheumatic heart disease of childhood are in a majority of cases referable to the myocardial lesions, and not to those of the serous layers. This is substantiated by postmortem evidence. (2) Death during childhood from rheumatic carditis is, more often than not, directly due to myocarditis. (3) Some, at any rate, of the deaths, occurring in rheumatic heart disease during adolescence and early adult life are probably caused by the muscular lesions.

30. **Pyelitis in Pregnancy.**—Ward distinguishes "the pyelitis of pregnancy which has come to be so well recognized," which he terms encylopyelitis, from pyelitis in pregnancy, viz.: "those cases in which pyelitis occurs in pregnancy owing to some previous disease which might well have caused it at some other time." He concludes that encylopyelitis is commoner than is usually thought. Every practitioner in the course of a lifetime will meet with a few cases. More attention, therefore, should be paid to this disease in the medical schools. The disease is due to an infection of the kidney pelvis with organisms, usually *Bacillus coli communis*, and these organisms usually follow an ascending course. A similar infection can occur in women apart from pregnancy, and even in men. The prognosis, both immediate and remote, is worse than has been hitherto supposed. The treatment should be medicinal, by the internal administration of hexamethylentetramin, and if this does not succeed, labor should be induced without undue delay. Nephrotomy should never be performed until the obstetrical treatment has failed and the patient is still ill after the puerperium. Nephrectomy is only justifiable in rare cases as a cure for a persistent fistula or when the kidney is completely disorganized.

Practitioner, London

November

- 32 Home Treatment and Nursing of Pulmonary Tuberculosis in Dublin. Sir W. J. Thompson.
- 33 Infective or Ulcerative Endocarditis. N. Tirard.
- 34 *Adherent Pericardium. W. J. Fenton.
- 35 Account of the Theory and Employment of Bier's Method of Treatment by Passive Congestion in Case of Rheumatoid Arthritis, Tubercle Sepsis, and Various Other Conditions (continued). A. W. Wakefield.
- 36 Gastric Ulcer. L. H. L. Mackenzie.
- 37 Recent Work in Diseases of Children. G. F. Still.
- 38 The Stomach. F. C. Moore.
- 39 Medical Inspection of School Children. R. P. Williams.
- 40 Neoplasm of the Kidney Presenting Certain Unusual Features. R. Parnell and R. Gompertz.

34. **Adherent Pericardium.**—Fenton considers especially two types of adherent pericardium: (1) the form in which, while there is close adhesion within and obliteration of the pericardial sac, no appreciable clinical or pathologic results are produced, the lesions appearing to be entirely without effect; and (2) where adhesion is accompanied by marked cardiac hypertrophy and dilatation, serious embarrassment of the circulation, and early death of the patient.

Out of 150 cases of adherent pericardium in which the cause of death was specifically stated in the postmortem records to be the direct result of the heart lesion, 65 were found during the first three decades and 17 in the last four; while, where death had followed on causes unconnected with the heart, 13 only were found during the first three decades, and 55 in the last four. Thus, there is an almost precisely opposite state of affairs in cases found in the first three and last four decades, respectively.

Fenton concludes that (1) the two types of adherent pericardium are found at different periods of life. The first, or grave, form occurs under 30; the second form, which has little or no significance clinically, after that age. (2) A history of rheumatism is almost always associated with the former, while it is absent in the latter. (3) The former is accompanied by valvular disease in by far the greater number of instances, while in older cases an opposite state of things is observed, but in a certain proportion of young cases valvular disease is absent, the clinical and pathologic results being apparently produced solely by the condition of the pericardium; in the older cases, conversely, a few show coincident valve disease. There are no physical signs or symptoms by which the presence of adherent pericardium can be recognized

with certainty, but, taking into account all factors present, a correct diagnosis may be reached in a fair proportion of cases. The great difficulty occurs when the question is complicated by the existence of aortic regurgitation. Everything depends, then, on how much regurgitation there is. The whole question of diagnosis depends on the correlation of signs or symptoms and the relation of signs to one another. The most important thing is to remember the possibility of existence of adhesions, and they are suggested whenever serious symptoms of cardiac failure are found in a young patient, in whom the physical signs do not appear sufficient to account for their severity, or when excessive enlargement of the heart exists in the absence of aortic disease.

British Journal of Children's Diseases, London

November

- 41 *Deafness in Relation to School Medical Inspection. M. Yearsley.
- 42 Patent Ductus Arteriosus. J. E. H. Sawyer.
- 43 Non-Development of the Lower Extremities in Twins. F. V. Milward.
- 44 Supposed Maternal Impression. C. H. Melland.

41. **Deafness in School Children.**—Yearsley discusses the enormous importance of perfect hearing in the intellectual and moral development of children. He describes as follows the development of the relations existing between hearing, understanding and speech: In the language of a nation, certain articulate sounds become the symbolic representatives of certain definite ideas, learned by each child first as sounds, later as symbols. The sounds are first registered in the cortical center for hearing, and it is under the guidance of this center that the child trains the motor center to articulate the sounds, thus getting second images imprinted on the cortical motor center for speech. The motor reproduction of sound becomes so interesting that the child reproduces many sounds by echolalia, without attempting to understand them. Before echolalia is exhibited, however, the child obtains a number of word memories imprinted on the auditory center before he can articulate a single one of them, and these are even associated with their proper meanings. At this stage the education of the receptive center is ahead of that of the productive (motor) center. This short explanation will serve to demonstrate how much depends not only on the auditory receptive center, but on the integrity of the channels—the auditory receptive conductive apparatus—which carry the sound to the center. When there is any defect of hearing the development of speech suffers, and with it the mental development of the child. Yearsley discusses the various pathologic conditions that form the basis of inattention. Children with adenoids and nasopharyngeal catarrh are easily fatigued and their capacities vary with the state of the weather, dampness rendering them more defective. Teachers should understand that children who make little progress and are inattentive should be presented for medical examination before being set down as refractory. He enumerates the various tests for hearing, of which speech is the most important; the tests should be applied in the presence of the teacher. All pupils should be examined as regards their hearing in the first year of school life. This examination should consist of a preliminary inspection of all children, with testing of hearing acuity, by the school doctor, and a special examination by an otologist of those found wanting. Both examinations should be repeated for all children kept back in their classes, and in all who have, in the course of the year, suffered from any of the exanthemata or shown signs of ear disease. To make the results of practical value, the examinations should be made in the presence of the teacher, and every case should be followed up as regards the seeking of treatment. When a child is brought up for examination as dumb, the medical inspector must decide whether it is mentally defective or deaf. He should, therefore, satisfy himself as to (1) the condition of the hearing; (2) the child's play and general conduct; (3) its habits as regards cleanliness; (4) its affection and manageableness; (5) the condition of the ears, nose and throat. Yearsley then discusses extensively the education of the deaf child, and the question of its being taught in the ordinary classes, in special classes in the ordinary schools, or in special schools according to the degree of defect.

Journal of Tropical Medicine and Hygiene, London

November 2

- 45 Preliminary Note on a Protozoon in Yaws. A. Robertson.
 46 Cholera Carriers. J. R. Forrest.
 47 *Sutika: Puerperal Diarrhea of Bengal. F. Pearse.
 48 *Engineers and Malaria. M. Watson.
 49 The Avian Hemoprotozoa of the Genus *Leucocytozoon* (Danilewsky). L. W. Sambon.

November 16

- 50 Continued Fever of Non-Malarial Origin. T. Gann.
 51 *Recent Advances in Science and Their Bearing on Medicine and Surgery. S. P. Manson.

47. This article appeared in the *Lancet*, Nov. 7, 1908.

48. Engineers and Malaria.—Watson says that engineers do not yet realize the enormous influence for good or evil which they possess. Many details of work may be of little consequence from an engineering point of view, but of vital importance to the public health in a tropical country. In order to avoid friction between engineers and medical officers, a certificate should be required from the former, when reporting the completion of their work, that as far as practicable no unnecessary pools have been created and drainage has not been interfered with. It will take years for the new ideas on malaria to take a place in the consideration of the engineer when designing or carrying out new works.

51. This article appeared in the *Lancet*, Oct. 3, 1908, and was abstracted in THE JOURNAL, October 31, page 1553.

Journal of Obstetrics and Gynecology of British Empire, London

November

- 52 Malignant Melanoma of the Vulva. E. Holland.
 53 *Two Cases of Uterine Fibroid Showing Peritheliomatous Changes: Long Immunity from Recurrence After Operation. A. H. G. Doran and C. Lockyear.
 54 Case of Perithelioma of the Endometrium. G. F. D. Smith.

53. This article appeared in the *British Medical Journal*, Nov. 21, 1908.

Annales de Gynécologie et d'Obstétrique, Paris

November, XXXV, No. 5, pp. 641-704.

- 55 *Operative Obstetrics in Dystocia Due to Pelvic Deformity. Pinard.
 56 *Uterine Cancer Interfering with Delivery. (Cas de cancer utérin cause dystocie.) A. Herrgott.
 57 Delivery with Stricture of the Vagina. (Rétrécissement du vagin.) S. Pozzi, Id. Hartmann, Id. Couvelaire.
 58 *Conservative Cesarean Section. (Série de 14 opérations césariennes conservatrices.) J. Mouchotte.

55. Management of Difficult Delivery Due to Deformed Pelvis.—Pinard urges never to use force when a woman is in labor, as the result is a wounded or killed infant, and he also proscribes without reserve all intervention for inducing abortion or premature delivery. Since 1890 he has performed symphyseotomy in 141 cases, the Porro operation in 22, and conservative Cesarean section in 30, more than half of the latter during the last two years. He has been growing bolder with the progress in surgical technic, and now believes that the field for conservative Cesarean section should be enlarged. He regards it as indicated in all cases of extreme deformity of the pelvis and the "limit" cases, but not until labor has commenced. This inclusion among the indications for conservative Cesarean section of the "limit" and "surprise" pelves he regards as great progress in obstetrics. Labor must be under way, and the cervix not fully dilated, with symptoms threatening mother or child or heralding approaching rupture. In his 30 cases, all the women and children left the hospital in good condition. Symptoms of infection, of course, contraindicate Cesarean section, but he protests against the assumption that a hospital environment is necessary, saying that every physician worthy of the name should be competent to do a Cesarean section. All physicians should know now how to realize asepsis anywhere, for the childbirth as well for an operation.

56. Cancer Interfering With Delivery.—Herrgott reports a case to illustrate his view that with a cancer interfering with delivery, the safety of the child should be the main preoccupation. The child in this case was delivered by Cesarean section, after which the uterus was removed, but there are indications

of recurrence of the cancer at present, nine months later. The child is healthy.

58. Conservative Cesarean Section.—Mouchotte reports 14 cases and says that the technic is extremely simple, being merely "two incisions, two sutures." He drains under all circumstances, as, he says, it is always useful and often necessary.

Bulletin de l'Académie de Médecine, Paris

November 10, LXXII, No. 36, pp. 317-374.

- 59 *Diagnosis and Etiology of Aortic Aneurism. (Anévrisme de l'aorte.) E. Boinet.
 60 *Prophylaxis of Contagious Diseases.

November 17, No. 37, pp. 379-404.

- 61 *Medical Treatment of Pelvic Affections. L. G. Richelot.

59. The Larynx with Aneurism of the Aorta.—The autopsy of the case illustrated showed that the changes in the larynx observed were the result of pressure from the aneurism in the arch of the aorta pushing the trachea toward the left and back. The larynx was unusually low and twisted to the left. The case also explains the mechanism of the retrograde venous reflux in the right external jugular. The aneurism compressed both recurrent laryngeal nerves and projected into the supraclavicular fossa, simulating a concomitant innominate aneurism. Both suprarenal capsules were much enlarged, but there was no arterial hypertension or arteriosclerosis. Influenza was the only infectious disease in the previous history.

60. Summarized in Paris Letter, page 1985.

61. Ditto.

Archiv für Kinderheilkunde, Stuttgart

XLIX, Nos. 1-2, pp. 1-160. Last indexed Oct. 24, p. 1469.

- 62 Study of Secretion of Gastric Juice and Saliva in Child with Artificial Esophagus. (Zur Kenntnis der Magensaftsecretion nebst einigen Bemerkungen über Speichelsecretion.) P. Sommerfeld.
 63 Secretion of Gastric Juice in Infants. (Magensaftsecretion beim Säugling.) Engel.
 64 Ultramicroscopic "Dust" in Milk: Lactococci. B. Mautner.
 65 Clinical Study of Paratyphoid and Mixed Infection with Measles. B. Stolkind.
 66 Treatment of Pneumonia with Antipneumococcus Serum. (Behandlung der genuine Pneumonie mit Römer-Pneumokokkenserum.) A. Montl.
 67 *Causes for Lateral Curvature of the Spine. (Zur Entstehung der seitlichen Wirbelsäulenverkrümmungen.) G. Muskat.

67. Causes for Lateral Curvature of the Spine.—Muskat thinks that the influence of the school has been overestimated, and that the tendency to curvature is implanted in earlier life. Carrying an infant always on the same arm is one of the factors in its development. Another is the way in which older persons lead children by the hand in the street, drawing up one side of the child's body and twisting it out of shape. The older person's hand can not reach the upstretched hand of a little child, and the gap is bridged by dragging up the child's hand above its natural level. The left shoulder is pulled up in the air, the other shoulder depressed, with the result that a tendency to left scoliosis is implanted in the child's spine. Too long sitting without change in school and the carrying of school books are liable to aggravate existing scoliosis or develop it. The school-produced scoliosis is a left, convex, high dorsal scoliosis, while experience shows that this is comparatively rare. Left lateral scoliosis is far more common, and this is traceable to the period before the school age is reached.

Presse Médicale, Paris

November 25, XVI, No. 95, pp. 761-768.

- 68 *Hereditary Sudden Death. (Mort subite héréditaire.) A. Gilbert and A. Baudouin.

68. Hereditary Sudden Death.—Gilbert and Baudouin have encountered in the last few months six families in which there seems to be an inherited tendency to sudden death. Fourteen members of these families have died suddenly after a history of recurring syncope. Only three were women, and the deaths occurred between the ages of 20 and 62. They believe that this diathesis is more common than is generally recognized, family interests impelling its concealment. In one case the patient had six long syncope before the fatal one, twice as a child, twice in college, and once during his military service. These syncope lasted sometimes for twenty minutes, and this peculiar gravity differentiates this type from a simple

swoon. Death occurs instantaneously, from arrest of the heart. Knowledge of this diathesis explains certain cases of sudden death. Treatment can be only by prophylactic hygiene, they say.

Berliner klinische Wochenschrift

November 16, XLV, No. 46, pp. 2055-2092.

- 69 Removal of Tumor in First Left Temporal Convolution. (Operativ entfernte Hirngeschwulst aus der Gegend der linken Insel und ersten Schläfenwindung.) H. Oppenheim and F. Krause.
- 70 *Enlargement of Heart and Liver as Early Sign of Pulmonary Tuberculosis. (Herz-Lebervergrößerung, ein Frühsymptom der Schwindsucht.) S. v. Unterberger.
- 71 Roentgen Treatment of Skin Affections. (Röntgenbehandlung der Hautkrankheiten.) A. Blaschko.
- 72 *Rubber Ball Treatment of Nasal Affections. (Neues Verfahren zur Behandlung von Nasenleiden.) Sprenger.
- 73 *Stimulation of Intestinal Peristalsis by Injection of Hormone Extracted from Stomach Mucosa. (Spezifische Anregung der Darmperistaltik durch intravenöse Injektion des "Peristaltik-Hormons.") G. Zuelzer, M. Dohrn and A. Marxer.
- 74 Influence of Fats on Tryptic Digestion (Beeinflussung der tryptischen Verdauung durch Fettstoffe.) J. Neumann.

November 23, No. 47, pp. 2093-2128.

- 75 *Renal and Ureteral Changes in Prostatic Enlargement. (Entstehung von Veränderungen an Harnleitern und Nieren bei Prostatahypertrophie.) J. Tandler and O. Zuckerkandl.
- 76 The New Magnet Operating Room. J. Hirschberg.
- 77 *The Ophthalmodiaphanoscope and Its Application in Medicine. C. Hertzell.
- 78 *Experimental Influencing of Pregnancy. (Experimentelle Beeinflussung der Gravidität.) J. Hofbauer.
- 79 Cholera at Odessa, September, 1908. N. T. Gamaleia.
- 80 *Simple Method for Serodiagnosis of Syphilis. N. Tschernogubow.

70. Abstracted in THE JOURNAL. Oct. 10, 1908, page 1253.

72. New Method of Treating Nasal Affections.—Sprenger applies the general principles of resting an inflamed part and keeping further irritation away from it. The nasal mucosa is peculiarly exposed to thermic, mechanic and chemical irritation—its physiologic task is to arrest such irritating agents to prevent their further invasion of the air passages below. If the nasal mucosa becomes inflamed, a vicious circle results, constantly growing worse. Healing is possible only by removing all possibility of further irritation and giving the inflamed mucosa a chance to heal. This he accomplishes by the use of a ball of very soft rubber, about 12 mm. in diameter, pushed into the nostril to occlude the passage. He has the ball introduced alternately into the nostrils and left in place for half to three-quarters of an hour, several times a day. There is a small handle to the ball, and this is all that shows. The ball not only keeps away irritation and rests the mucosa, but it induces local hyperemia and a warmer temperature, and the patient experiences great relief, while healing rapidly proceeds.

73. Therapeutic Utilization of Natural Hormone That Stimulates Peristalsis.—Zuelzer states that he has succeeded in isolating the natural hormone from the stomach mucosa which provides the physiologic stimulus for intestinal peristalsis. It is found in the stomach mucosa only during the acme of digestion; the mucosa of the fasting stomach does not contain it. It is extracted with salt solution or diluted hydrochloric acid from the stomach mucosa and the albumin is removed with alcohol. This hormone, like all the others, acts by way of the blood. Injected into a rabbit's vein, energetic peristalsis, starting at the duodenum and running to the rectum, is at once set up. The action of the hormone is similar to that of physostigmin in some respects, but the latter is more of a tetanic contraction, and the contraction persists, while the hormone induces true peristaltic waves. The discovery of this peristaltic hormone also modifies some of the present conceptions in regard to constipation.

75. New Explanation for Renal and Ureteral Changes in Prostatic Enlargement.—Tandler has been impressed with the constant normal aspect of the mouths of the ureters in the bladder when there was serious disturbance from dilatation from the ureters and stagnation of urine in the kidneys. The dilatation of the ureter commences abruptly at the point where it is crossed by the vas deferens. The enlargement of the prostate changes the position of the vas, pulling it down until it compresses the ureter, which becomes dilated above. This is probably the explanation for the ureter colics, some-

times observed with enlarged prostate. The kidney functioning suffers, and gastrointestinal symptoms follow. The improvement in the kidney disturbances with enlarged prostate when the retention in the bladder is cured does not contradict the facts presented. As the bladder subsides when its contents are evacuated, the relation between the vas and the ureter is modified, and thus the ureter becomes more permeable. Severing the vas must have the same favorable influence on the outlet for the urine from the kidney, and this fact should be borne in mind in considering a palliative operation. Also in considering prostatectomy, stagnation of urine in the kidney, even without retention in the bladder, should be accepted as an indication for operation. It seems as if in such cases the removal of the prostate is more urgently required than in the cases of uncomplicated chronic retention in the bladder which hitherto has been the main motive for the operation.

77. The Ophthalmodiaphanoscope.—Hertzell illuminates the eye from the rear by introducing a powerful light into the back of the mouth. The patient wears a black mask, covering all but the eyes.

78. Experimental Influencing of Pregnancy.—Hofbauer reports experiments in which cholesterol, the physiologic opponent of lecithin, was fed to gravid animals. He gave the cholesterol added to the food. In every case there were destructive changes in the placenta, evidently the result of the action of the cholesterol on the lecithin which abounds in the placenta. The changes in the placenta resembled in every respect those observed in syphilitic placenta. This suggests the possibility of a uniform explanation of the various facts observed in regard to the action of cholesterol—the "physiologic antipode of lecithin"—in syphilis and in cancer, the tissues in the latter being unusually rich in lecithin.

80. Simple Method of Serodiagnosis of Syphilis.—The simple technic described allows the serodiagnosis by the occurrence of hemolysis. An alcoholic extract of desiccated syphilitic liver tissue and one drop of blood are required.

Correspondenz-Blatt für Schweizer Aerzte, Basle

November 15, XXXVIII, No. 22, pp. 713-744.

- 81 *Tendency to Convulsions in Young Children: Spasmophilia. (Die idiopathischen Krämpfe des frühen Kindesalters.) E. Feer.

81. Idiopathic Convulsions in Infancy.—Feer approves of the term "spasmophilia" to designate the morbid condition characterized by galvanic and mechanical overexcitability of the peripheral nerves and by the tendency to certain tonic and clonic, local or general spasms. He describes some typical cases; in one the convulsions were accompanied by facial and auditory hallucinations. Many of the convulsions formerly ascribed to casual toxic or sympathetic causes are now known to be due to this spasmophilic diathesis. Children with this tendency often display an acute increase in galvanic excitability at the onset of a febrile infection, even when no convulsions are observed. Convulsions are especially liable in these children during influenza, whooping cough and tonsillitis. The so-called reflex convulsions nearly all belong to this spasmophilic condition, especially the convulsions from teething, which many doctors and mothers accept as a convenient and tranquilizing explanation for the disturbances. Feer has made a special study of these "teething" disturbances, but has never become convinced that dentition is capable alone of inducing any essential morbid symptoms. He has never encountered any cases of "convulsions from teething," but he has frequently found that the so-called dentition convulsions were the result of spasmophilia. He calls attention to the prevalence of the convulsions during the winter and early spring, when the children are kept housed in unventilated rooms. The same injurious influences which favor spasmophilia also favor rachitis. Both are rare in breast-fed children. Experiments in his clinic have shown that lime has nothing to do with the etiology of spasmophilia, but that there is some close connection between it and the parathyroid bodies. In his experience, the spasmophilia never passed into true epilepsy. If the child must be artificially fed, the amount of food should be reduced to the minimum; calomel and re-

striction to tea or water for a day or so, followed by gruel and phosphorus and cod liver oil, are the measures recommended, with artificial respiration in severe spasm of the glottis, chloroform and chloral. It is possible, he remarks, that implantation of fresh parathyroid bodies may yet prove useful in spasmophilia.

Deutsche medizinische Wochenschrift, Berlin

November 19, XXXIV, No. 47, pp. 2009-2056.

- S2 *Dilatation of Heart. (Herzdilatation.) E. Romberg.
S3 *Importance of Cellulose in Diet of Diabetics. (Weitere Beobachtungen über die Bedeutung der Zellulose—Hemicellulose—für die Ernährung der Diabetiker.) A. Schmidt and H. Lohrlich.
S4 *Special Form of Disturbance in Orientation and Its Occurrence in Mental Affections. (Eine besondere Form von Orientierungsstörung und deren Vorkommen bei Geisteskranken.) A. Pick.
S5 *Justification and Technic for Therapeutic Abortion. (Berechtigung und die Methode der Unterbrechung der Schwangerschaft.) H. Fritsch.
S6 Attempts at Non-operative Treatment of Carcinoma. (Ueber nicht operative Heilversuche beim Carcinom.) W. Zange-meister.
S7 Improvement from Becoming Accustomed to Consequences of Accidents. (Gewöhnung an Unfallfolgen als Besserungstat-sache.) G. Ledderhose.
S8 Treatment of Acute Catarrh of the Middle Ear. (Behandlung des akuten Mittelohrkatarrhs.) H. Walb.
S9 Etiology of Pertussis. (Aetiologie des Keuchhustens.) W. N. Klimanko.

S2. Incipient Dilatation of the Heart.—Romberg declares that investigation of the total circulation and conditions elsewhere and the history of the case (chorea or rheumatism in the antecedents) will often enable an incipient organic heart affection to be diagnosed, even when percussion and ortho-diagraphy give negative or dubious findings. It may be impossible otherwise to distinguish slight dilatation from enlargement of the heart from change of position or change in the percussion findings from unusually thick or much curving of the chest wall. He warns that, especially in the pathology of the heart, a single symptom is generally of little value or the diagnosis, as, for instance, when dyspnea on exertion with early fatigue suggests an incipient heart disease or a still latent cancer. Much obesity, affections of lungs or kidneys liable to impose extra work on the heart, disturbances from a thyroid affection, a peculiar thickness of the walls of blood vessels in the young, and, above all, sclerosis of the ascending aorta, testify to incipient heart disease and, in case of associated organic and functional disease, reveal what part of the syndrome is referable to each of these factors. It is thus possible to avoid the too frequent mistake of overlooking the comparatively insignificant organic affection in the more striking functional syndrome.

S3. Importance of Cellulose for Diet of Diabetics.—Schmidt and Lohrlich announced last year that certain diabetics were able to tolerate cellulose and that they had found this fact useful in the dietetic treatment of such patients, as mentioned in THE JOURNAL at the time, Jan. 4, 1908, page 81. They gave the cellulose then in form of a desiccated vegetable preparation, but since have found that a preparation of agar-agar is better tolerated and supplies more nourishment in proportion. Patients unable to ingest 10 gm. of grape sugar or 20 gm. of starch without appreciable increase in the elimination of sugar were able to tolerate perfectly from 18 to 36 gm. of the hemicellulose supplied in a pulverized preparation of agar-agar. It can be mixed with a beverage or soup without impairing the taste. The healthy can assimilate as much as 60 gm. or even more a day, from 25 to nearly 75 per cent. being utilized, the proportion larger the smaller the amount ingested. Fully 72.5 per cent. was utilized by a patient with chronic constipation who took 240 gm. in three days—this experience confirming the author's previous announcements in respect to extremely thorough digestion of the food being the main factor in chronic constipation. The food is assimilated so completely that no waste is left to maintain the functioning of the intestines. Dissolved in cold water the preparation has prompt reducing power and deflects light slightly to the left, but forms no gas with yeast. After boiling, the tests show that the plane of polarized light is deflected to the right, and that the sugar formed is galactose. After complete hydrolysis with 2 per cent. hydrochloric acid, 67.8 per cent. of the dried residue is sugar, and almost ex-

clusively galactose. The agar hemicellulose is thus galactan. Clinical research has shown that this is only gradually absorbed from the ingested preparation, and this slow, gradual assimilation is the principal reason, they think, for its toleration by the diabetic.

S4. Localization in Brain of Disturbance in Orientation.—Pick has observed a case of a peculiar disturbance in orientation, the patient having the impression that his environment was turned around horizontally for about 180 degrees. He has further encountered this disturbance in two insane patients, and Kolb has recently reported a case with autopsy findings. All this evidence sustains the assumption of the localization of the primary lesion in the semicircular canals, and that localization of the process in the parietal lobe partially responsible for the symptom is possible if greater attention is paid to this disturbance and the details of more cases published.

S5. Interruption of Pregnancy.—Fritsch delivered this address at the recent "Naturforscher Congress." He reviews the various conditions which justify interruption of a pregnancy, mentioning that he has been called in consultation five times in the last forty years for women already moribund from uncontrollable vomiting of pregnancy. The only reasonable advice then was to let the women die in peace, but he is confident that if the uterus had been emptied in time, these lives might have been saved. Tuberculosis is the only other indication he admits for interruption of a pregnancy, and in both these conditions he would not sanction it unless the patient were in a hospital where the physician could see for himself the failure of other suitable measures. In respect to tuberculosis, he states that he has had cases in his experience in which a tuberculous affection healed under fresh-air treatment during the pregnancy, and no recurrence has been observed in subsequent pregnancies. In such cases much depends on the financial condition of the patient. He adds that there is scarcely any other condition in which the physician must study and ponder as in a case of pregnancy plus tuberculosis. If the uterus is to be emptied, he warns that this should be done very slowly and cautiously in imitation of Nature's methods, and never outside of a hospital, both in the interests of the patient and for external reasons, adding that unskilful management of the abortion is more dangerous for the patient than to allow the pregnancy to run its normal course. He describes his simple technic, saying that the various steps can not be taken at arbitrary moments, but must follow the course of the natural processes and signs as they develop—another reason for institutional environment.

Medizinische Klinik, Berlin

November 8, IV, No. 45, pp. 1707-1746.

- 90 *Treatment of Abortion. (Abortbehandlung.) F. Engemann.
91 *Investigation of Stomach and Intestines by Bismuth Method. (Untersuchung des Magens und Darmes mit der Wismuth-Methode.) Albers-Schönberg.
92 *Absolute and Relative Indications for Administration of Alcohol in Certain Nervous Conditions. (Alkohol-anwendung bei einigen nervösen Zuständen.) H. Röder.
93 Is Coffee a Beverage or a Poison? (Genuss und Gift.) W. Sternberg.
94 Tonics. (Tonika.) W. N. Clemm.
95 Physicians in Politics. (Die Aerzte als Politiker.) L. Hirsch.

90. Treatment of Abortion.—Engemann has been collecting data from 80 general practitioners in town and country in his vicinity at Dortmund, and finds that they all, as a rule, follow the technic which he advocates. Expectant tamponing of the vagina is practiced in many cases with good results. In other cases, especially during the first months of pregnancy, the curette is preferred, and almost invariably by those with the largest experience. He thinks that the estimate of 10 or 20 abortions in every 100 pregnancies is rather below the actual figures. The curette should never be small or sharp. To prevent recurrence of abortion, the first measure must be to postpone for a time the next pregnancy, and, in case of syphilis, specific treatment. In dubious cases the new serum test will give the clue to treatment. If the cause of the abortion was a trauma or if there are grounds for assuming that the uterus is unduly irritable, everything tending to induce a shaking up of the body should be avoided. Above all, strict repose at the dates corresponding to the menses

should be enforced. Only when the first critical months are over may a little more freedom be permitted. In case the skin is sensitive, all chilling should be avoided which might lead to harmful congestion in the interior, and the abdomen should be protected by suitable clothing, the food should be easy of digestion, and the bowels should be kept open. Some give sedatives for a long time; for this asafetida and viburnum are preferable.

91. Roentgen Examination of the Digestive Tract.—Schönberg gives an illustrated description of his technic for examination of the stomach and intestines and the deductions therefrom.

92. Alcohol in Nervous Disturbances.—Röder remarks that no one applies to a physician, as a rule, until home remedies have been exhausted, and that alcohol in some form is almost certain to have been among them. He protests against alcohol in any form in ptosis of the stomach or intestines, as this is not a local affection, but is associated with nervous and other disturbances. He has been surprised at the coincidence of enlargement of the thyroid and tendency to hernia with enteroptosis. The physical and nervous disturbances which forbid the use of alcohol in case of enteroptosis in many cases do not develop until the age of 25 to 28. Among his patients with concussion of the brain, not one had previously been warned by his physician to refrain from alcohol. On the contrary, nearly every one who had had slight concussion of the brain had been given alcohol by those assisting after the accident, including physicians. To his question: "Did it help you?" the answer was always in the negative. Any concussion of the brain contraindicates alcohol, and many physicians refuse to treat traumatic nervous affections unless the patients go to a hospital where abstention from alcohol will be enforced. Traumatic nervous affections tend to induce hysteria, and the necessity for abstention from alcohol in hysteria and neurasthenia and conditions of dread and compulsion can never be too often emphasized. The patient is chained to his crutch and soon is unable to do without it if alcohol is given to relieve him. A psychic trauma of any kind should contraindicate alcohol, as it is particularly liable to act abnormally in abnormal psychic conditions. He includes in this the period before and after an operation. He comments on the lack of attention paid to the fact that abstention from alcohol is an important factor in the warding off of the after-effects of gonorrhea and syphilis. The worst forms of tabes occur among those who take alcohol, and the lesser consumption of alcohol is one reason, he thinks, why women have the milder form. Among the injurious influences of syphilis must be counted, besides the virus, the emotional distress, the knowledge of the disease, the psychic depression and the necessity for secrecy, all of which render alcohol particularly injurious for syphilitics.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XIX, No. 3, pp. 381-552. Last indexed Nov. 7, p. 1649.

- 96 *Local Tuberculin Reactions in Surgical Affections. Especially in the Conjunctival and Scleral Regions. (Zur Kenntnis der Konjunktival- und Skleralaffektionen an chirurgischen Kranken, speziell bei Kindern.) A. Wolff-Eisner and S. Brandenstein.
- 97 *Sarcoma of the Esophagus. (Zur Kenntnis des Oesophagus-sarkoms.) v. Hacker.
- 98 *The Mechanics of the Cerebrospinal Fluid and Their Application to Spinal Anesthesia. (Mechanik des Liquor cerebrospinalis und ihre Anwendung auf die Lumbalanästhesie.) Propping.
- 99 Endothelioma of Gasserian Ganglion. R. Giani.
- 100 *Typhoid Pyonephrosis. K. Meyer and C. Ahreiner.
- 101 *The Ocular Tuberculin Reaction. Its Alleged Dangers and Its Value in Surgery. (Konjunktivalreaktion mit Tuberkulin. Ihre angeblichen Gefahren und ihr Wert für die Chirurgie.) H. Zieppritz.
- 102 Hysterie Contractures and Their Relations to Organic Affections. (Die hysterischen Kontraktionen und ihre Beziehungen zu organisch bedingten Krankheitszuständen des Menschen.) M. Trappe.

96. Local Tuberculin Reactions in Surgical Affections.—Wolff-Eisner and Brandenstein found only two dubious responses in 200 children tested by the ocular or cutaneous technic or both. The results confirm the absolute harmlessness of the ocular test made with a 1 per cent. solution of a special tuberculin. They advise a combination of the ocular and cutaneous technics. The response is just as reliable in

the surgical as in the internal cases. The torpid form of scrofula gave negative findings, but the active form always gave the reaction.

97. Sarcoma of the Esophagus.—A case is reported by von Hacker and the details of twenty cases from the literature are tabulated for comparison. The prognosis is less favorable than with carcinoma. Death occurred in from two and a half to twelve months after the first symptoms in twelve cases. Besides operative measures, arsenic should be given freely, he says, as for sarcoma in the pharynx, occasionally changing the preparation.

98. Mechanics of Cerebrospinal Fluid.—Propping has been studying the cerebrospinal fluid from the standpoint of mechanics and physics, and his research throws a little more light on spinal anesthesia. Even a fluid of much greater specific gravity rapidly diffuses through the cerebrospinal fluid when the patient is in the dorsal decubitus. Consequently he advises raising the head after the operation to oppose this diffusion as much as possible. In every case the probable diffusion of the injected fluid to the medulla oblongata must be reckoned with, but it is impossible to foretell how long it will take. He warns emphatically against doing any long operation with the pelvis raised after a solution of higher specific gravity than the cerebrospinal fluid has been injected into the spinal canal.

100. Typhoid Pyonephrosis.—Meyer and Ahreiner report a case in a girl of 16, a chronic bacillus carrier. She had passed through measles, scarlet fever, whooping cough, pneumonia, typhoid with left pyonephrosis and diphtheria, all before the age of 9. Trouble recurred in the left kidney, and it was removed after eight months of symptoms. The typhoid bacilli were voided exclusively in the urine, which became sterile after the nephrectomy.

101. The Ocular Tuberculin Reaction; Its Alleged Dangers and Its Value for Surgery.—Zieppritz reports the findings in 123 cases of various bone, joint, glandular and genital affections in which the ocular tuberculin test gave constantly a positive response when the process was of a tuberculous nature. As constantly the response was negative when the process was of other etiology. He uses a 1 per cent. solution of Koch's "old" tuberculin, and states that his experience has amply demonstrated the harmlessness of this technic. A negative response can be accepted, he says, as positively excluding tuberculosis in all "closed" affections of the above categories. With the "open" cases the verdict is less conclusive.

Münchener medizinische Wochenschrift

November 10, LV, No. 45, pp. 2313-2368.

- 103 *The Ocular Tuberculin Reaction. (Bedeutung der Konjunktivalreaktion nach 4,000 klinischen Beobachtungen.) A. Wolff-Eisner.
 - 104 *Pathology of Epilepsy. M. Kauffmann.
 - 105 *Prophylaxis of Pulmonary Tuberculosis. P. Harrass.
 - 106 Internal Administration of Tuberculin and Similar Preparations. (Interne Anwendung von Tuberkulin und tuberkulinähnlichen Präparaten.) A. Moeller.
 - 107 Compound Fractures of the Skull. (Komplizierte Schädel-frakturen.) A. Schönwerth.
 - 108 Radical Operation for Epigastric and Subumbilical Hernias of the Linea Alba by Transverse Incision of the Fascia and Separating the Muscles. F. Brünig.
 - 109 Anesthetization of the Eye and Its Appendages. (Zur Methodik der Anästhesierung des Auges und seiner Adnexe.) Messmer.
 - 110 Kefir in Chronic Digestive Disturbances of Infants. (Kefir als Säuglingsnahrung bei chronischen Verdauungsstörungen.) Tollens.
 - 111 Necessity for Complete Correction of Myopia in Children. (Vollkorrektur der Kurzsichtigkeit im Kindesalter, eine erzieherische Notwendigkeit.) K. E. Weiss.
- November 17, No. 46, pp. 2369-2416.
- 112 Choreoasthenic Dementia with Juvenile Nodular Hyperplasia of the Liver. G. Anton.
 - 113 Treatment of Syphilis with Highly Concentrated Mercurial Preparations. (Verwendung hochprozentiger Quecksilber-mischungen zur Syphilisbehandlung.) K. Zieler.
 - 114 *General Anesthesia with Part of Circulation Shut Off. (Narkose bei künstlich verkleinertem Kreislauf.) zur Verth.
 - 115 A Frequent Affection of Certain Bones in Children. (Eine häufige, bisher anscheinend unbekannte Erkrankung einzelner kindlicher Knochen.) G. F. Haenisch.
 - 116 Two Cases of Sutured Stab Wounds of Right Ventricle. (Stichverletzung der rechten Herzkammer. Herznaht.) M. Grasmann.
 - 117 Rumination in Man. (Ruminatio humana.) Bruegel.
 - 118 *Case of Raynaud's Disease. A. A. Lustig.
 - 119 *Treatment of Megacolon. (Zur Kenntnis der Hirschsprung-schen Krankheit.) Hellwig.

120 *Treatment of Appendicitis. II. Jaeger.

121 Abortive Pneumonia. Käppeli. Id. K. Rühl.

122 Exophthalmic Goiter in Connection with Tuberculous Affections. (Basedow im Anschluss an tuberkulöse Erkrankungen.) V. Hufnagel.

103. The Real Significance of the Ocular Tuberculin Reaction.—Wolff-Eisner has now an experience of 4,000 cases in which this test has been applied. Comparison of the course of the cases with the findings has demonstrated that a positive ocular reaction to tuberculin with his technic indicates an active tuberculous focus, while the subcutaneous and cutaneous methods give positive findings even with latent foci and hence are less instructive as a guide to treatment. The positive reaction to the ocular test in the apparently healthy threw discredit on the method at first, but time has revealed that these apparently healthy persons had some unsuspected active focus which later became evident. He discusses various features of the tuberculin reaction, especially the phenomena in certain cases in which the patients reacted with increasing fever to 1, 3 and 5 mg. of tuberculin subcutaneously, but, continuing with 7 and 9 mg., no further general reaction followed. Instead of this, there was intense flaring up of a preliminary cutaneous reaction (in one case simulating erysipelas, in another an immense furuncle). This paradoxical behavior he explains by assuming that there are two kinds of immunity to tuberculosis: immunity in respect to absorbable toxins and immunity to the tubercle bacilli. The latter immunity is a bacteriolytic property; the immunity to the toxins liberated by destruction of the bacilli is not an anti-toxic property, but is due to the binding of the toxins by organic receptors which are found frequently in the connective tissue. The tuberculin goes to the points where the receptors are accumulated. These points are the disease foci or other points artificially made to behave like foci; that is, accumulating receptors. If the tuberculin is all bound by these receptors there will be only a local reaction, but if only partially or transiently bound there will be an attenuated or tardy focal and general reaction. He thinks that it is possible to create a nest of receptors in some neutral tissue, such as the connective tissue. These receptors will attract the tuberculin and localize the toxic action. He is convinced that it is possible to base on these facts a much more effectual and harmless tuberculin therapy and determine the indications. They differ with the different stages of the disease and the amount of production of lytic substances and of binding receptors. Knowledge of the binding conditions gives a new basis for Ehrlich's "experimental therapy."

104. Pathology of Epilepsy.—Kauffmann reports metabolic findings in epileptics which have convinced him that the disease is of toxic origin in some cases. He believes that the brain and the skeleton are peculiarly sensitive to certain metabolic disturbances, and that epilepsy and rachitis should be referred to this origin. This suggests the possibility of more effectual treatment. The bromids have only a symptomatic action.

105. Prophylaxis of Pulmonary Tuberculosis.—Harrass declares that the local predisposition has been too much neglected hitherto, and that more can be done in developing the upper opening of the thorax and the respiratory muscles to ward off apical processes. Especially important in this line is the prevention and cure of scoliosis, particularly in families with a tendency to tuberculosis or rachitis. Medical students should be trained to recognize curvature of the spine in its incipency, and physicians should be on the lookout in consultations, in family practice and in inspection of school children to recognize scoliosis and traces of rachitis, and then insist on measures to counteract the development of the ph. hisic thorax. He has found Kuhn's lung suction mask an important aid when gymnastic and respiratory exercises, sports, etc., are not sufficient alone.

114. General Anesthesia with Part of Circulation Shut Off.—This communication from Bier's clinic relates experiences with general anesthesia given after application of Esmarch's bandage to shut off the circulation in the legs. No attempt was made to have more than the usual amount of blood in the parts shut off, and no bandage was applied to the arms,

on account of reports in the literature of injury of nerves after application of the Esmarch bandage to prevent hemorrhage during operations. The experiments on animals showed that a much smaller amount of the anesthetic sufficed for the general anesthesia and that the animals roused much quicker than the controls. The same technic applied in 100 cases in the clinic has failed to show any disadvantages or by-effects. One great advantage is that ether can be used instead of chloroform, robust men coming rapidly under the influence of ether by the drop method and requiring only a very small amount. When the bandage was removed from the legs the patients roused almost at once. In order to test the method, volunteers at the clinic had the bandage applied to all the four extremities. The pain was slight at first, but became unbearable after fifteen minutes. No appreciable changes in the pulse or blood pressure occurred. Verth regards the deadening of the sensibility of the patient before the operation by the scopolamin-morphin-ether technic as a great progress, and thinks that this artificial shutting off of part of the circulation will aid materially in reducing the dangers of general anesthesia. The most important advantage, however, is that after the operation the blood released from the legs rushes back and acts as a stimulant on the nerve centers, possibly from the influence of the carbon dioxide accumulated in it. Not the lack of oxygen, but the excess of the anesthetic, paralyzes the respiration center. The lacking carbon dioxide in the blood is supplied by the blood running from the legs after the bandages are cautiously removed.

118. Raynaud's Disease.—Lustig reports a severe case and discusses the treatment, which should aim to remove the cause by tonics, dieting, etc., and, especially in hysteria, psychotherapy. His patient showed polycythemia and diffuse arteriosclerosis. Considerable relief was obtained from venesection twice a year. It attenuated the phenomena observed and also the subjective disturbances.

119. Hirschsprung's Disease.—Hellwig reports a case in a young woman who had suffered from birth from obstinate constipation; sometimes intervals of two or four weeks elapsed between defecation. Serious ileus did not develop until the age of 21, when the anomaly in the intestine was remedied by an anastomosis between the transverse colon and the descending loop of the sigmoid flexure.

120. Cupping in Treatment of Appendicitis.—Jaeger, during the last year and a half, has treated six patients with appendicitis exclusively by stopping all food and applying from 16 to 20 dry cups to the right lower abdomen for about 23 minutes every 3 hours. The results have been so favorable that he urges general adoption of the measure as unable to do harm, while liable to give great relief. He advocates operative treatment, as a rule, using the cupping glasses only when surgical measures are contraindicated or while awaiting the surgeon.

Zeitschrift für klinische Medizin, Berlin

LXVI, Nos. 5-6, pp. 565-506. Last indexed Nov. 21, p. 1826.

123 Muscular Sense. (Zur Lehre vom Muskelsinn.) Goldscheider.

124 Laws of Sugar Elimination in Diabetes. (Gesetze der Zuckerauscheidung beim Diabetes mellitus.) S. Bernstein, C. Bolaffio and v. Westenrijk. Id. W. Falta.

125 Influence of Frenkel's Exercise Therapy on the Rapidity of Conduction in the Peripheral Centripetal Neuron in Tabes. (Einfluss der Frenkelschen Übungstherapie auf die Leitungsgeschwindigkeit im peripheren zentripetalen Neuron bei Tabes dorsalis.) D. de Vries Reilingh.

126 Distribution of Nitrogen in Hypertrophied Myocardium. (Verteilung des Stickstoffes im hypertrophischen Herzmuskel.) J. Bence.

127 Perisigmoiditis and the Pelvic Forms of Appendicitis. (Ueber die Perisigmoiditiden und die Beckenformen der Appendicitis.) W. Obrastzow.

128 Relations of "Sound" Method of Determining the Maximal and Minimal Blood Pressure to Other Methods, and Interpretation of Findings. (Beziehungen der Tonmethode der Bestimmung des Maximal- und Minimal-Blutdrucks zu den übrigen Methoden und über die Bedeutung dieser Grössen.) N. van Westenrijk.

129 *European Chyluria. A. Magnus-Levy.

120. Chyluria.—Magnus-Levy states that the expulsion of the parasites is the first step, if any are present. The eggs of the *Tenia nana* and *Eustrongylus gigas* have been found in some of the European cases, of which 50 are on record. Among this number were 4 with diabetic symptoms, and he has en-

countered another of this kind. The chyluria is evidently an affection of the lymphatic system, and the functioning of various organs may become secondarily disturbed. In one case the chyluria had been observed for fifty-five years, but had never caused much derangement. The disturbances are generally due to coagulation of the urine in the urinary passages, and symptomatic measures to keep the urine fluid are indicated. Fat in the diet seems to have an influence in this respect.

Zentralblatt für Chirurgie, Leipzig

November 28, XXXV, No. 38, pp. 1317-1356.

- 130 Extension by Means of Rod Passed Through the Bone. (Extension am quer durchbohrten Knochen.) E. Becker.

Zentralblatt für Gynäkologie, Leipzig

November 21, XXXII, No. 37, pp. 1521-1544.

- 131 Cancer Statistics. (Zur Karkinomstatistik.) O. v. Herff.
132 Constant Leakage of Amniotic Fluid. (Hydrorrhoea gravidarum amnialis.) R. v. Fellenberg.
133 *Allowing Patients to Get Up Early After Laparotomies. (Zum frühen Aufstehen nach Laparotomien.) C. Hartog.
November 28, No. 38, pp. 1545-1568.
134 Publotomy with Moderately Contracted Pelvis. (Pubotomie bei mässig verengtem Becken.) W. Sigwart.
135 Toxicology of the Placenta. P. Mathes.
136 Improved Support for the Legs. (Beinhalter.) K. Holzapfel.

133. Allowing Patients to Get Up Early After a Laparotomy.—Hartog states that he was the first to introduce this innovation into Germany, where it has excited much discussion, but he adds that he obtained the idea from an article in THE JOURNAL, by Ries, in 1899.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 8, XXIX, No. 131, pp. 1337-1352.

- 137 *Diagnostic Value of Roentgen Rays in Internal Medicine. (Valore diagnostico dei raggi Röntgen nella medicina interna.) V. Maragliano.
138 *Scapular Sound and Its Diagnostic Significance. (Rumore scapolare e del suo significato diagnostico.) E. Tedeschi.
139 Toxins of Helminths. (Ricerche cliniche sui veleni degli elminti intestinali, a proposito delle prove di Jelmov.) A. Borini.
140 Cutaneous and Ocular Tuberculin Reactions in Adults. (Sulla cutifed oftalmolo-reazione tubercolinica nell'adulto.) E. Nicola.
141 Indications for Picric Acid. L. Zanetti.

November 15, No. 137, pp. 1369-1384.

- 142 Precipitin Test for Latent Purulent Processes. (Diagnosi biologica di raccolte purulente latenti.) E. Tedeschi.
143 Favorable Results of Treatment with Suprarenal Extract of the First Case of Osteomalacia. (L'esito finale del primo caso di osteomalacia trattato col metodo Bossi.) S. Rebaudi.
144 Coagulating Power of Blood and Elimination of Lime in Urine in Dementia Praecox. (Potere coagulante del sangue ed eliminazione del calcio per le urine nella demenza precoce.) A. Perugina.

137. Roentgen Rays in Diagnosis of Internal Diseases.—Maragliano concludes his remarks on this subject by deploring that the Roentgen technic as yet does not allow of its diagnostic application in the acute diseases. He trusts that the near future will witness the simplification of the apparatus and improvement in the technic so that in severe acute disease early Roentgen differentiation may be possible.

138. Sound in the Scapula and Its Diagnostic Significance.—The sound to which Tedeschi refers is elicited in the scapular region by moving the arm to and fro as the patient breathes deep. Applying the hand on the scapular region a sensation as of fremitus is perceived or a creaking sound is heard if the ear is applied to the region. The patients sometimes call the physician's attention to this region by complaining of spontaneous pain, and there is generally tenderness with the sound. He has encountered it in 58 patients; in 32 there were signs of incipient tuberculosis, while 17 were in an advanced stage of the disease, and 9 were anemic and weak, but no clinical signs of tuberculosis were evident. He accepts the scapular sound as evidence of a tuberculous process in the lungs, possibly still latent.

Policlinico, Rome

November, IV, Surgical Section, No. 11, pp. 473-520.

- 145 *Non-auditory Lesions of the Internal Ear. (Lesioni del labirinto non acustico dimostrate con ricerche sperimentali e cliniche.) A. Torretta. Commenced in No. 12.
146 Two Rare Cases of Sarcoma of the Spermatic Cord. (Sarcoma del funicolo.) M. Fasano.
147 *Causes Inducing F... e Circulation
(Su alcune durante la
cloroformizzazione.) A. Messeri.

145. Experimental and Clinical Research on Lesions of the Semicircular Canals.—Torretta's extensive monograph, commenced in the April number, is just concluded. Most of the experimental work was done on fowls, as they show most readily any disturbance in balance. The horizontal or superior semicircular canal or both were isolated and resected or merely cocainized or paraffin was injected into the internal ear, sparing the membranous labyrinth, to study the action of pressure, etc., on the semicircular canals. Also, in guinea-pigs, the fluid in the internal ear was evacuated and the effects studied. The clinical research included 100 cases of lesions of the non-auditory portion of the internal ear; several typical cases are reported in detail. The phenomena observed show that nystagmus, the various ocular reflexes and vertigo may be regarded as symptoms of irritation of the semicircular canals. Disturbances in balance are a symptom of loss of functioning, especially when the symptoms of irritation are lacking. Among the arguments in favor of the assumption that nystagmus is a symptom of irritation and not of loss of function is the fact that there is no nystagmus with complete destruction of the epithelium of the semicircular canals, while it accompanies the acute forms of middle-ear disease and the chronic forms in which the semicircular canals are not involved. Also that the nystagmus can be induced by artificial irritation of the labyrinth, and that it subsides and disappears as the otitis improves and heals. Also by the fact that physiologic nystagmus can be induced more readily in the young than in the aged and most readily in individuals with especially sensitive nervous system. This is probably due to hypersensitiveness of the nervous system in general and of the semicircular canals in particular. In one of his cases in which there was complete destruction from the effects of a firearm wound, it was impossible to elicit nystagmus or vertigo by any artificial stimuli. Nystagmus is an important symptom, further, as it can not be deceptively simulated. It is one of the early symptoms, and may have subsided before the patient comes under medical observation. When it appears late in the case it is generally a sign of some complication beyond the labyrinth. He reports a case of this kind; the labyrinth had been entirely destroyed by a purulent process, and the nystagmus was evidently due to the complicating meningitis. The principal characteristic of simple irritation of the semicircular canals is its transientness, but it is liable to persist indefinitely until the cause is removed.

147. Reflexes During Chloroform Anesthesia.—Messeri has been studying the behavior of the reflexes under chloroform, and he has become convinced that some of the functional heart and respiration disturbances are the result of reflex action from the field of operation. Certain regions are more liable than others to elicit such reflexes. Among them are the testicles, the spermatic cord, hernia, the peritoneum and all points where the mucous membrane joints the skin, as at the anus. The intensity of the reflex also varies with the nervous condition. In anemia, infections, intoxications, psychoneuroses, etc., the reflex excitability should be tested before an operation, he thinks, and chloroform should be used with exceptional care in the cases with hyperexcitability. He is confident that the chloroform is unable to abolish all reflex action, especially in the more distant regions. The danger from chloroform syncope is imminent throughout, but he thinks it is more liable toward the close of the anesthesia from the depression induced by the chloroform. His conclusions favor administration of morphin an hour or more before the operation on all extremely excitable patients, and for all operations in regions known to be particularly liable to induce reflex action. Deep chloroform anesthesia should be reserved for the stage of the operation in which it is indispensable, and for those operations which require relaxation of the muscles. Since he has preceded the chloroform with morphin, he has never had any mishaps from chloroform or ether. Very much smaller amounts are required when a sedative is given beforehand. He describes three cases in detail in which threatening syncope was observed under chloroform in operations on the inguinal region and epididymis.

Hospitalstidende, Copenhagen

September 16, LI, No. 38, pp. 1089-1112.

- 148 *Diagnosis of Motor and Secretory Functioning of the Stomach. (Diagnosen af Ventriklens Motilitet og Sekretion.) F. Svendsen. Commenced in No. 37.

September 23, No. 39, pp. 1113-1136.

- 149 Roentgen Diagnosis of Stones in Kidney and Ureter. (Om Diagnosen af Nyre- og Uretersten ved Hjælp af Røntgenstråler.) P. K. Faber.

September 30, No. 40, pp. 1137-1160.

- 150 *Constitutional Causes of Hemorrhage from the Lungs. (Om konstitutionelle Aarsager til Lungeblødninger.) N. J. Strandgaard.

October 7, No. 41, pp. 1161-1184.

- 151 Nitrite Poisoning from Bismuth in Roentgen-Work. (Tilfælde af Nitritforgiftning efter intern Anvendelse af subnitratis bismuthicus ved Røntgenundersøgelse.) R. W. Kiær.

October 21, No. 43, pp. 1209-1232.

- 152 Glandular Fever. ("Drüsenfieber" Pfeiffer.) K. Schaffer.

148. Diagnosis of Motor and Secretory Functioning of the Stomach.—Svendsen presents here a detailed study of several dozen cases of various functional gastric disturbances, his aim being to show that it is possible even for the busy general practitioner to make a few simple functional tests which will allow him insight into the conditions in the particular case for effectual treatment. He tabulates for comparison the findings in 12 cases of motor insufficiency, 2 of simple gastroparesis, 5 of simple hypersecretion, 1 of the same plus hypermotility and several with motor insufficiency plus hypersecretion or of hypermotility alone. He uses three procedures: 1. Aspiration of the stomach content with a bulbed tube; 2, rinsing out the stomach with 300 c.c. of water, and, 3, rinsing out the stomach with the largest possible amount of water to remove every trace of solid content. These three procedures are done on the fasting stomach, again one hour after an Ewald-Boas test breakfast and again two and a half hours after the test breakfast. The second procedure is the application of the Mathieu method to determine the exact quantity of the stomach contents. After removal of a small amount of stomach content, 300 c.c. of water are poured through the tube and then withdrawn. The quantity of the original contents is equal to the number of c.c. of water poured in, multiplied by the acidity present after its addition, divided by the result of subtraction of the second acidity from the first, and adding the portion withdrawn on the first occasion. In Svendsen's tables the findings with each of the three procedures are tabulated in three columns, one showing the stomach content first aspirated, the second column the acidity, and the third the total amount, calculated according to the Strauss "sedimentation test." A high "sedimentation quotient" with normal or reduced total amount is encountered in cases of dilatation of the stomach, with or without gastritis, and in nervous dyspepsia—all distinguished by impairment of motor activity. He protests against the assumption that motor insufficiency is the result of imperfect development or lesser energy in the musculature of the stomach. It is manifested by an especially large amount of filtrate in a normal or unusually small amount of total content; this is partly the result of the reciprocal action between the contracting musculature in the pylorus and the expelling force of the stomach, and is partly dependent on the degree of acidity in the stomach. On the other hand, hypermotility is not the expression of unusual development or energy in the musculature of the stomach, but is a functional anomaly which causes the rapid emptying of the stomach, and is dependent likewise on the reciprocal action between the pyloric sphincter and the expelling forces of the stomach. The history of the case and application of the above procedures, with chemical and physical study of the stomach content, do not require expert skill. He regards a total content of 120 and up, with a high sedimentation quotient, as the type of motor insufficiency, while hypersecretion or excessive production of mucus accompanies the type with a total content of 120 or under, with a sedimentation quotient of 1/5 or less. When both types are combined both total stomach content and filtrate are unusually large. He accepts as the normal condition a stomach content of from 50 to 120 c.c. unfiltered, the filtrate not over 25 and the sedimentation quotient less than 1/4 or 1/5, with a total acidity of from 40 to 60.

150. Constitutional Causes for Hemoptysis.—Strandgaard points out that not merely the stage of the disease, but also the build of the patient, whether his heart is of proper size for his height and weight, chronic alcoholism, habitually high blood pressure, and mixed infection should be considered in connection with the tendency to hemoptysis, as also the mode of life, etc.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE NATIONAL STANDARD DISPENSATORY. Containing the National History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopoeias of the United States, Great Britain and Germany, with many references to other foreign pharmacopoeias. In Accordance with the Eighth Decennial Revision of the U. S. Pharmacopoeia, by authorization of the Convention. By Hobart Amory Hare, B.Sc., M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College, Philadelphia; Charles Caspari, Jr., Ph.G., Pharm.D., Professor of Theoretical and Applied Pharmacy in the Maryland College of Pharmacy, Baltimore; and Henry H. Rushby, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York; with valuable assistance from Edward Kremers, Ph.D., Daniel Base, Ph.D., and Joseph F. Geisler, Ph.C., 2nd Revised Edition. Cloth. Pp. 2050, with illustrations. Price, \$6.00. Philadelphia: Lea & Febiger, 1909.

MODERN MEDICINE. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England. Assisted by Thomas McCrea, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. Volume V, Diseases of the Alimentary Tract. Cloth. Pp. 903, with illustrations. Price, \$6. Lea & Febiger, 1908.

STUDIEN UEBER DIE BEI PERITONÄALEN INFEKTIONEN APPENDIKULÄREN URSPRUNGS VORKOMMENDEN SAUERSTOFFTOLERANTEN SOWIE OBLIGAT ANAEROBEN BAKTERIENFORMEN mit besonderer Berücksichtigung ihrer Bedeutung für die Pathogenese derartiger Peritonitiden. Von Birger Runeberg, Assistenzarzt an der Chirurgischen Universitäts-Klinik zu Helsingfors. Paper. Pp. 303, with illustrations. Berlin: Verlag von S. Karger.

UEBER DEN ANATOMISCHEN BAU DES CONUS UND DER ADERHAUT-VERÄNDERUNGEN IM MYOPISCHEN AUGE. Inaugural-Dissertation zur Erlangung der Doktorwürde einer hohen medizinischen Fakultät zu Helsingfors. Vorgelegt von Emil Behse, Assistenzarzt an der Universitätsaugenklinik in Helsingfors, Finnland. Paper. Pp. 60, with illustrations. Leipzig: Wilhelm Engelmann, 1907.

THE SYSTEMATIC RELATIONSHIPS OF THE COCCACEAE with a Discussion of the Principles of Bacterial Classification. By Charles Edward Amory Winslow, Assistant Professor of Biology at the Massachusetts Institute of Technology, and Anne Rogers Winslow. First Edition. Cloth. Pp. 300. Price, \$2.50. New York: John Wiley & Sons, 1908.

BAKTERIOLOGISKA UNDERSÖKNINGAR AF DE KYNLIGA GENITALA SEKRETER UNDER FÖRLOSSNINGEN OCH BARNSÄNGEN MED SÄRSKILD HÄNSYN TILL FROGAN OM DEN PUERPERALA AUTOINFEKTIONEN. Af Valter Wegelius, Med. Lic. Paper. Pp. 226, with illustrations. Helsingfors, 1908.

ANATOMISCHE VERÄNDERUNGEN IN VIER WEGEN DRUCKSTEIFERUNG ENKLEIDIERTEN AUGEN MIT NETZHAUTHÄMORRHAGIEN. Von Anna Dahlstrom, Med. Lic. Paper. Pp. 148, with illustrations. Leipzig: Druck von Alexander Edelmann, 1908.

ESSENTIALS OF MEDICINE. By Charles Phillips Emerson, M.D., Late Resident Physician, The Johns Hopkins Hospital. Cloth. Pp. 383, with illustrations. Price, \$2. Philadelphia: J. B. Lippincott Co.

SYNTHÈSE ET CONSTITUTION DES ALBUMINOÏDES. (Les Actualités Chimiques et Biologiques, No. 10.) Par M.—Emm. Pozzi-Escot. Paper. Pp. 110. Price, 1.50 francs. Paris: Jules Roussel, 1909.

THE DOCTOR IN ART. A Volume of Twenty-five Reproductions of World-Famous Masterpieces. Edited by Charles Wells Moulton. Cloth. Buffalo: The Douglas Publishing Co.

LES MERVEILLES DE L'HYPNOTISME. Par Geraud Bonnet, Médecin Practicien à Orlan. Paper. Pp. 281. Price, 3.50 francs. Paris: Jules Roussel, 1909.

REPORT OF THE COMMISSION OF EDUCATION FOR YEAR ENDED JUNE 30, 1907, Vol. 1. Cloth. Pp. 522. Washington: Government Printing Office, 1908.

AMERICAN SOCIETY OF TROPICAL MEDICINE. Papers read before the Society and Published Under Its Auspices. Vol. 3, 1907-1908. Paper.

HINTS TO SHIPS' SURGEONS. By J. F. Elliott, L.R.C.S., L.R.C.P. Cloth. Pp. 64. Price, 2s. London: John Bale, Sons & Danielson, Ltd.

THE ARKANSAS DOCTOR. A Photogravure, size, 22x28. Price, \$3.00. Brooklyn, N. Y.: David Bruce Conklin, 578 Jefferson Ave.

TRANSACTIONS OF THE MAINE MEDICAL ASSOCIATION, 1908. Vol. XVI. Part II. Paper. Pp. 444. Portland: Stephen Berry Co., 1908.

USE AND CARE OF MICROTOME. Bausch & Lomb Optical Co., Rochester, N. Y. Paper. Pp. 32. For gratuitous distribution.

LA GYMNASTIQUE RAISONNÉE. Par Eugène Paz. Paper. Pp. 256. Price, 2 francs. Paris: Jules Roussel, 1909.

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THE GENERAL PRACTITIONER AND THE FUNCTIONAL NERVOUS DISEASES *

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The subject which I have selected for discussion this evening may appear vague, but I have in my mind a definite message. It may seem that I am arrogating to myself the privilege of speaking authoritatively on a subject which neither my years nor my experience justify. But before you pass judgment I ask you to take into consideration the motive, which is an earnest desire to inquire into the cause and significance of the wave of supernaturalism that is rolling over the country in the shape, particularly, of doctrines promulgated under the name of Christian Science and the Emmanuel movement by Quimby, Eddy, Worcester and their followers. This movement assails the potency of the physician adequately to combat disease, accuses him of ignorance and incompetency, and openly contends that if medicine desires to be reinstated in the esteem of the people and retain their confidence it must link hands and proceed shoulder to shoulder with supernaturalism. And this in the twentieth century, when the accomplishments of medicine are a towering, imperishable monument to the achievements of science in the hands of mortal man. The existence and the rapid growth of these cults, whose chief object is the cure or denial of disease, is patent to every one. It was never borne in on me so tellingly as it was last summer, when, wandering through New England where once my careless childhood strayed, I saw in dozens of hamlets and small towns the familiar Congregational churches replaced by temples reared to God and consecrated to Mrs. Eddy.

Are we physicians not responsible, in a measure, for the occurrence of this strange phenomenon? Have we kept our houses in order and our wares in such condition that they can be examined without fear on our part that they will be found below the standard demanded by modern conditions? Have we purified with the fires of self-criticism and self-examination the crucibles of thought in which we concoct our remedies?

FUNCTIONAL NERVOUS DISEASES

The so-called functional nervous diseases comprise the field in which these supernaturalists chiefly work, and it is for this reason that I have chosen these diseases for my subject.

The attitude of the general practitioner toward nervous diseases has been a strange one, in some respect inexplicable. My justification for presuming to speak on the subject is founded on many years' experience as a practitioner and intimacy with physicians as a teacher in a graduate school of medicine.

Nervous diseases are looked on as mysterious in their manifestations, incomprehensible in their display, unamenable to treatment, and therefore unworthy of profound effort at interpretation. A physician who would hesitate to admit that he was ignorant of the commoner diseases attacking any other system of the body does not hesitate to say with great frankness that he knows nothing whatsoever about diseases of the nervous system. Apparently he does not feel that such admission reflects disparagingly on his medical education.

The explanation of this attitude is a simple one. In the first place, it is a direct heritage. There is scarcely a physician who has been in practice twenty years who received any considerable instruction during his college days in neurology. He may have heard a few didactic lectures and attended an occasional clinic in which the commoner nervous diseases were demonstrated, but the majority sat under professors of medicine who had as little interest in nervous diseases and as little inclination to attempt the serious study of them as the students themselves displayed when they in turn became practitioners. Consciously or unconsciously, they acquired the idea that it was a mark of good form to slight nervous diseases. Moreover, the immediate results of such example was that when the young practitioner began to encounter nervous disorders he was at a loss how to begin the study and interpretation of them; in other words, how to attack them.

If a patient came complaining of symptoms referable to the kidneys, to the respiratory organs, to the pancreas, to the ductless glands, the physician recalled a method of investigation and a plan of attack which he had been taught and when he put these into operation he found frequently that he was led to a correct interpretation of the symptoms for which he was consulted. But it was not so with disorder of the nervous system.

The practitioner heard the patient's history and statement of his complaints, and then he found himself unable to conduct the examination in a way that would reveal the location and nature of the disease. This statement of affairs was true, not only for organic nervous diseases, but for functional nervous diseases. Gradually the commoner organic nervous diseases were found to be readily recognized in the majority of instances by the application of empiric knowledge or rules of thumb; it then became truer for the functional diseases than for the organic. For instance, the diagnosis of tabes was readily made when the Argyll-Robertson pupil, absent knee-jerks and Romberg symptoms were present. Like-

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wise, when a patient who, previously having had syphilis, showed slight spasticity of the legs, exaggerated knee-jerks, the Babinski sign, and trifling disturbance of sensibility, the physician did not hesitate to make the diagnosis of syphilitic spinal paralysis, or of syringomyelia when with muscular atrophy there was associated sensory disturbance, characterized particularly by dissociation of sensibility. Happily, physicians of the present generation have received instruction to such purpose that the commoner organic nervous diseases are usually recognized. The conviction that they are less amenable to treatment than other forms of chronic diseases is, however, still very widely held, and neurologists are often taunted with their inability to cure chronic diseases of the nervous system. But when such diseases are compared with other visceral diseases of comparable severity and chronicity we find that many of them are as susceptible to treatment as many diseases of the kidneys, pancreas and liver.

It is particularly the functional nervous diseases and the attitude of the general practitioner toward them that I wish to discuss.

FUNCTIONAL OR ORGANIC?

I shall not stop to consider the possibility that the diseases which we now call functional, some or all, may not one day be found to be dependent on definite organic alteration; that some of them will be seems very likely. There are diseases in which no characteristic anatomic alterations are found after death, and yet we believe these to be organic diseases. Among these are paralysis agitans, grave myasthenia and hyperthyroidism. There are other nervous diseases, commonly spoken of as diseases of degeneracy or deviation, such as tic, hysteria, idiopathic epilepsy and psychasthenia, possibly migraine, which are not likely to be found associated with anatomic alteration. The very fact that the individual who is a victim to one of these diseases is, for long periods, free from any indication of disease is the chief reason for assuming that they are not dependent on organic change. Although a person may have an organic disease and at times be free from symptoms, such disease can not last for a long time without causing symptoms.

If we ask ourselves earnestly and soberly what we understand by tic, hysteria, epilepsy, psychasthenia and migraine, what answer is obtained? A few will be able to explain the modern conception of these diseases from the biologic and psychologic points of view, but the average physician will be able merely to describe or to define the leading clinical features of each one of them. Yet if you ask that same physician to tell what he understands by diabetes he will probably say that he interprets it as a profound disorder of metabolism, in which sugar is manufactured not only from carbohydrates, but from proteids, possibly from fats, whose chief manifestations are polyuria, glycosuria and disordered nutrition. He is likely to tell of the important rôle played by the pancreas in the metabolism of carbohydrates; of diabetes produced by complete extirpation of the pancreas in animals which can be cured by grafting a piece of pancreatic tissue beneath the skin; and he makes the differential diagnosis between glycosuria and true diabetes with a great deal of positiveness. Yet diabetes is quite as mysterious a disease as hysteria and infinitely less susceptible to cure. There seems to be something about the functional nervous diseases which is decidedly repellent to many members of our guild

THE REALITY OF NERVOUS DISEASES

I have spoken so far of only one feature of the physician's attitude toward functional nervous diseases, which is the admission that he does not know anything about them, that he does not know how to attack them in order to interpret them, and that he is ignorant of the modern teaching concerning their origin and nature. I wish now to refer to another feature of his attitude toward them—one that is almost entirely either hereditary or atavistic—and that is the belief, feeling or assumption that these diseases are not real, that they are more or less assumed, that they are manifestations of weakness of contumacy, that they are a sort of splotch on the scutcheon of health and of moral dignity, that they are evidences of stubborn perverseness which excite a mingling of sympathy and contempt, that they are the products of a disordered imagination. This is a distinct sequel of the view which looked on functional nervous diseases as manifestations of demoniacal possession, and it is probably very much less prevalent than it was even a generation ago. But it exists still, and it shows itself in the disinclination on the part of many of us seriously to study these disorders and to attempt to get at the foundation of the symptoms of the disease. In other words, it shows itself in the casual way in which neuroses of degeneracy are frequently treated.

REFLEX CAUSES

A third inclination on the part of the physician to attribute the occurrence of many of the nervous diseases under consideration to causes operating from a distance and through organs whose connection with the nervous system is very remote—so-called reflex causes. Fortunately, the uterus has lost its hold on the functional nervous diseases, and with it has gone the dominion of the clitoris, the prepuce and other portions of the genital apparatus, but every now and then we have to bow our heads in sorrow, if not in humiliation, while some one attempts again to scatter seeds of belief in the reflex theory of the causation of nervous diseases, even though the disease be locomotor ataxia and the source of the reflex impulse the urethra.

There can be no doubt that the manifestations of any of the functional nervous diseases of degeneracy may be brought about by the stress and exhaustion produced from any continuous strain or any frequently repeated series of disagreeable sensations. But these do not cause the disease; they cause manifestations of the disease. This is but a mirage in pathology, and the deceptiveness of appearance yields to appropriate investigation.

PSYCHOLOGY

The fourth reason for the practitioner's inadequacy to deal successfully with the functional neuroses is in a great measure due to the fact that psychology is for him a terra incognita. He has been and is still trained in utter ignorance of the essential facts and principles of psychology. Naturally he knows something about the mind, as does any layman, and he speaks of sensations, emotions, ideas, thoughts and feelings, using these expressions in significations that are common to all mankind; but when he comes to interpret the psychic symptoms of the neuroses he finds it necessary to make exact distinctions. For example, he probably believes there are five senses, sight, hearing, smell, taste and what is commonly called a sense of touch, or the skin sense; yet he does not know that this traditional classification

is regarded as utterly lacking in significance by the modern psychologist. Consequently when he comes to examine the sensitive surface of the skin and finds that there are several recognizable different sensations, such as those of pain, touch, temperature, tickle sensation and pressure sensation, that one or the other of these may be absent while the others remain, the situation is beyond his comprehension. He stands with little more than mere astonishment before the discovery that a man may lose his ability to sense heat and yet retain his ability to sense cold. If he has studied physiology of the nervous system he knows that the pathways in the spinal cord for these different qualities of sensation are different; but without this knowledge anesthesia is most confusing.

THE MIND NOT A THING APART

The practitioner probably shares also the common belief of mankind that the mind is an entity apart from the body, and that certain mental states have no material basis. This is a view that at one time was quite generally held and which is difficult to down. I note that, in a clinical lecture on hysteria delivered in New York, a teacher of neurology, in describing pain which the patient complained of every morning on arising, and which prevented her from going to work, took the position that the pain, being hysterical, was purely mental and, therefore, had no cause resident in the brain of the patient. There is no pain or ache or vain imagination which has not some cause in the nervous system of the subject. The cause may be found in very different portions of the nervous anatomy. A toothache may have its cause in caries of the tooth; on the other hand, it may be due to some pressure on or disease of the superior maxillary nerve. Again, it may be the result of an intoxication which affects the cells of the Gasserian ganglia, or to disturbance of the cerebral centers that are responsible for the apprehension of pain sensations. The presence of pain, after it has once been established, is a symptom of some disordered function of the nervous system, though we may or may not find its site.

If students of medicine were given even an elementary course in the facts of psychology their attitude toward their patients and toward the psychic symptoms which they present would be quite different both in nervous and in many other diseases.

My experience has been that the chief obstacle to the satisfactory interpretation of nervous phenomena by the physician who has not had special training is that he is at a loss how to proceed with the examination of the patient. If the patient is a sufferer from functional nervous disorder which does not carry with it some distinctive diagnostic symptoms, such as headache in migraine, or the convulsion in epilepsy, the story of the symptoms is so complex and so indistinctive, one might say, that the physician finds difficulty often in getting what may be called a diagnostic perspective. Finding the patient lachrymose and emotional, he calls the disorder hysteria; if depressed and inert, he calls it neurasthenia; and even when he has made the diagnosis he does not feel any particular satisfaction. But when the same physician makes a diagnosis of tuberculosis, of hydrochlorhydria, of pyelitis, immediately there arises in his mind a course of conduct which, when put in operation, will be likely to bring his patient relief. If he does not feel sure of his diagnosis, there occur to him further procedures of which he may avail himself to make it absolutely certain. But with the functional neuroses such prospects do not present themselves. The

physical examination is usually confined to a routine procedure of investigating the state of the urine, the condition of the heart and lungs and the state of the tendon-jerks, the so-called reflexes. It may be too much to expect that he should analyze the genesis of an obsession, or unearth an experience which a long time antedates the patient's disorder, but which, nevertheless, stands close to it in causal relationship. Still, a willingness to do this and a willingness to call to his aid the services of others who possess skill in that direction is necessary if we are to remove the obloquy that has become attached to our conduct of these diseases. It has been said that we prescribe medicines for the functional nervous diseases empirically, and principally bromids and strychnin. In no other branch of medicine does the practitioner feel justified in similar procedure. He considers a diagnosis to be an absolute necessity before any systematic treatment is begun, and even when the diagnosis is made he has clearly in his mind a definite picture of the morbid condition which the therapeutic measure proposed is intended to overcome. Does he have any such definite purpose when he essays to treat the functional nervous disease? I think it will be agreed that he does not.

THE EMMANUEL MOVEMENT

My chief reason for discussing the attitude of the physician toward the functional nervous diseases is to be found, however, in some occurrences of the past two years. Somewhat more than two years ago the rustle of psychotherapy was plainly heard in this country, but it is only recently that it has attained cyclonic proportions in the shape of the so-called Emmanuel movement. This is a revival of some of the emanistic doctrines of Neo-Platonism, fostered by the philosophy of F. H. W. Meyers and Hudson, with here and there the teachings of William James. It has developed under the auspices of the Emmanuel Church of Boston from the efforts of the Rev. Elwood Worcester. This divine claims to have received the germinal idea from Dr. S. Weir Mitchell and the impetus to start the movement in the hearty cooperation of the "leading neurologists of New England," but especially of Dr. James J. Putnam, professor of neurology in Harvard University. Both physicians have publicly repudiated the Emmanuel movement, its practice, pretensions and propaganda.

In reality the purpose of the movement is the revivification of that branch of the Christian Church of which the Rev. Elwood Worcester is a member and whose doctrines he professes to believe and has promised to disseminate. This church has fallen into a state of apathy, whose future along present lines of conduct seems bleak and sterile (quoted from Rev. E. Worcester's address to the Faculty Club of Columbia University, May, 1908): "The Christian character of the undertaking is guaranteed chiefly by the fact that it is absolutely disinterested." Volunteer contributions are solicited at each meeting so successfully that already the Boston clinic is in possession of a large fund which, it has been said by one of the founders, is to be used for the purchase of a property and for the construction of a spiritistic sanitarium in a salubrious locality that is at once soothing to the senses and stimulating to the soul. But the Christian character of the New York movement is not so disinterested, judged by the above-mentioned criterion. Its initiator there says, in a circular letter:

"We are ready for the very rich, for the very poor, and for the majority that are neither the one nor the other. And

most people do not want free service. Their wishes are right and will be respected. Ours is no free clinic except to the very poor; save to them there will always be charges and offerings.

There is no likelihood that this language will be misunderstood. The leaders of this actively profess to base their advent into the practice of medicine on a scientific basis, and cite in support of their profession the fact that they have associated themselves with physicians. But, when the matter is looked into, it is found that in reality what they have done is to discuss with physicians the advisability and great desirability of uniting the efforts of the church and of the medical profession and of all other learned professions, so that the people of the earth shall learn to live hygienically and to think straight, in order that they may remain sound in body and sane in mind. There is no doubt where the medical profession stands in such a matter.

The Emmanuelites are attempting to associate with them physicians who will act as diagnostic tools and who, after making the diagnosis, will turn the patients over to them for treatment, the leaders of the movement, for some incomprehensible reason, assuming that they have an ability to cure disease which the physician has not or can not acquire. The only real motive that can be assigned for such attempt is that, having failed in the profession for which they were trained, a portion of the clergy now essay to try their luck in one for which they have no training, on the ground that Christ was a physician and that they are followers in his footsteps.

THE CHURCH AND HEALING

The church, for a large part of its history, was the most important social and political organization in the communities of Western Europe. It retains this position still in some countries, and is the fount of all knowledge, education and care of the deficient classes and the inspirer of social progress. Since the time of Descartes modern science has arisen and stripped away from the church many of these functions, because to be an expert in any one field has required exclusive attention. To-day the progress of medicine has brought us to a point where it is found that a certain community of interest must be developed. This is notably the case in the treatment of tuberculosis. The measures employed to place a community in the attitude of mind necessary to cope successfully with the ravages of this disease are economic, social, psychologic, moral and perhaps even religious. I am also of the opinion that this is the case with some nervous and mental disorders. These must be combated by educating and training the public, not by curing individual patients after the diseased condition has occurred. Consequently I look with favor and hope for much assistance from the development of social service in connection with dispensaries and hospitals for the treatment of these diseases.

The outcome of such cooperation would be that the church should resume, as it appears in some instances to be resuming, not only certain social functions, but also some care of the physical and moral lives of the peoples of their communions, in order that they may lead not merely a righteous and godly life, but also a hygienic one. This is a very different matter, however, from assuming the practice of medicine, which the Eddyites and the Worcesterites do.

I recently published a communication in the *New York Times* in which I attempted to show: 1. that physicians are more legitimately entitled to practice

medicine than clergymen; 2, that the assumption of the function of the practitioner of medicine by the latter profession was arrogant and unjustified; 3, that Worcesterites had no corner on cheerfulness, hope, courage, faith and prayer; 4, that it was ungracious of them to scoff at their parent, Mrs. Eddy. Among the many letters which I have received since this communication appeared are a few which seem to indicate a suspicion in the minds of the writers that I am opposed to the church as an agency to combat disease. On the contrary, I am firmly of the conviction that it is our most potent adjuvant in the warfare against disease and that we should avail ourselves of this powerful agency to inculcate principles of right living and optimistic, elevated thinking, which are the antagonists of ill health. "I dress their wounds and God heals them," wrote Ambrose Paré over the portal of his operating-room; and no one, I think, of our profession has so far lost sight of his personal insignificance as ever to think otherwise.

In healing "God cures by the use of sunlight, healing and nourishing substances, water and air," says one who presumes to act as His spokesman in a book entitled "Religion and Medicine." No believer in God, I presume, denies the truth of this, for it is a part of the general admission that God is love and virtue and the source of all beneficence. What the atheist or the agnostic believes about this no one but himself knows, for he does not feel called on to shout from the house-tops or from the vantage-place of the public press that which he believes but can not prove. Why do not the laborers in the Lord's vineyard who are so insistent on their disinterestedness aid those who are not so fortunate as to possess their intelligence and enlightenment to use these God-given and health-restoring agencies by precept and example rather than by attempting to explain their action by a nebulous philosophy that has little foundation and few adherents? If "the time is come when the church must enter into the personal lives of the people and make a freer use of the means modern science and the gospel of Christ places at her disposal if she is to continue to hold even her own," why not, I ask, teach well persons so how to live in the luminous light shed by these agencies that they will not fall into ill health? If the Rev. Dr. Worcester and his followers are so desirous of emulating Christ, they might begin by displaying a measure of that quality which was so essentially, next to His divinity, His most distinguished feature, namely, humility. They should display a willingness to work with the physician, not as the master but as the servant, as an unprofessional assistant strictly amenable to suggestions and to orders. That the physician should become a diagnostic tool in the hands of the clergyman is preposterous and absurd. That the clergy shall be allowed to practice medicine without qualification is absurd and illegal, and the safety of the people demands that they be protected from those who arrogate to themselves any such rights. Nearly 800 years ago the church and the practice of medicine were forcibly rent asunder by the first Lateran Council in the pontificate of Calixtus II; we are as unlikely to go back to it as we are to take up again researches in alchemy or to endeavor to find the philosopher's stone.

THE PHYSICIAN'S DUTY

The question is, what is our immediate duty in the matter as physicians? It is so to conduct ourselves in the study, interpretation and treatment of disease that

these and other interlopers shall not be able to charge us with incompetency, inadequacy and inefficiency. That there is some justification for so charging us in our treatment of the functional nervous diseases I have admitted; and the foundation of the charge has been our neglect of the appropriate study of nervous diseases in the light of the developments of modern psychology. For years neurologists have been tireless in pointing out the influence of mind over matter, especially manifest in the treatment of functional nervous disease. In season and out of season they have called attention to the fact that the important element in the treatment of these diseases was the patient himself, and that little could be accomplished until his attitude toward his disease was one of hope, faith, courage and self-reliance. They have recognized that the moral element in the causation and the maintenance of many of these diseases was the important one, and they have striven, with the aid of philosophy, religion and suggestion, to counteract it. So far as I am able to determine, their message fell on insensitive ears, for it was not until the publication of the translation of a book entitled "The Psychic Treatment of Nervous Diseases," by Dr. Paul Dubois of Berne that the profession in this country seemed to give heed to it. Then they gave heed with frenzy. Soon there began to be heard in medical meetings, papers—by internists as a rule—which set forth the great therapeutic value of psychotherapy. A reference to the current medical literature of the past two years will give an idea of the hold which this subject has obtained on the general practitioner. Neurologists who had been attempting to disseminate information concerning the value of psychologic interpretation and spiritual treatment were at a loss to understand wherein the novelty of the matter lay. The enthusiasm seemed out of all proportion to its merits, which it may be said in passing, had been fairly well determined. Nearly every one of these writers presented the subject as if it were novel, and openly stated that if its therapeutic potentialities were known and utilized the results accomplished by the physician would be vastly different. Some writers hinted that there was a more or less well-formulated procedure which constituted the mode of utilization of psychotherapy. For instance, it has been my experience to attend a meeting of a society which is commonly supposed to represent the most advanced expression of medical knowledge and culture and to hear a man make the statement that practically all cases of constipation yielded to psychotherapy. The writer had cured himself and every one on whom he could lay thought. Still, when he came to describe his mode of procedure it was found that it differed in no way, so far as the average mind could discern, from that which is utilized by many of us when we essay to treat this common infirmity.

Much advance has recently been made in the interpretation of psychic manifestations, in the understanding of psychogenetic symptoms and the way in which disorder of function, mental and physical, is overcome by psychic procedure. No one familiar with the work of Freud of Vienna, of Jung of Zurich, and of many neurologists and psychologists at home and abroad can deny it. But in reality their contributions have been in the line of psychic interpretation, psychoanalysis and psychodiagnosis. If one were to discover a mode of procedure that would allow us to diagnosticate a lesion of the bundle of His he would not be likely to speak of it as a contribution to the therapeutics of paroxys-

mal tachycardia. Naturally he might deduce from such knowledge a procedure whose application would result in cure, and in a measure this is what has occurred in the wake of Freud's and Jung's interpretations. For instance, many of the psychic and emotional manifestations of the neuroses have their origin in experiences affecting the moral sensibilities early in life. These may be so many years anterior to the time of appearance of these symptoms that they are absolutely forgotten, or if not forgotten the relation of cause and effect entirely lost sight of. It would seem to require no argument to convince one that the way to overcome such symptoms would be to uncover the psychogenetic experience on which the disorder is dependent and to present the matter to the patient's mind in a logical way. Then, with a mature mind, properly oriented, he might review the sequence of events and then sit in judgment on them. This judgment should be aided by wise counsel emanating from one who has had wide experience with such matters, and who is versed in the laws of physiology and pathology, such as the physician.

THE PHYSICIAN'S ATTITUDE

What is our further duty as physicians; as citizens and as representatives of the culture in our branch of the humanities of the twentieth century? In my opinion it is so to state our position that we shall not be misunderstood and that our motives can not be misinterpreted. It has been hinted here and there that our livelihood is being encroached on and that our very existence is threatened. If such things could be, and from the attributed causes, I for one should hail it with delight. The public probates of physicians' wills are the best evidences that most physicians do not practice medicine for riches, and the few who do must be bitterly disappointed. My profession needs no champion. If now and then we have fallen on parlous times, and words of appreciation and approval are grateful, a pen capable of transcribing letters in ink that will not fade has appeared in the hand of an immortal like Robert Louis Stevenson.

It has been said that physicians misunderstand the Emmanuelites' position and misinterpret their teachings. There seem to be no facts furnished on which to base such charges. A recent anonymous defender of Rev. E. Worcester, writing in the *New York Times*, says that physicians accuse Dr. Worcester of holding that psychotherapy is a universal panacea. I do not recall having seen such accusation in the public print; but a measure that will cure 80 per cent. of all cases of alcoholism approaches more nearly a universal panacea than anything this world has ever seen! This writer also says that Dr. Worcester is accused of wishing to revert to the age when the functions of priest and doctor were united in one man. I do not presume to know what Dr. Worcester wishes, but I judge from his actions and his words: they indicate that he is reverting to the middle ages. This critic also says:

"The chief reason why many sick persons hesitate before they send for a doctor is because doctors are too inhuman. They have lost their humanity in the laboratory. They look on a patient not as a poor, sick fellow-creature that they want to help, but as an interesting intellectual problem; an opportunity for a little original investigation.

Every one is entitled to his own opinion, unless his conduct based on such an opinion endangers life or makes its possessor a nuisance to others. When it does his family or friends put him into an asylum in order

to safeguard him and them. It would be interesting to know in what laboratory doctors are dehumanized. I am not aware that the laboratory experience of any save an extremely small number of physicians is of such extent that it would bear much more than mere mention.

I purposely refrain from speaking of one feature of the Emmanuel movement which solicits careful investigation; that is the statements of Dr. Worcester, his disciples and fellow-practitioners regarding the frequency of functional nervous disease and the success that attends their treatment. If any one can believe that they cure 80 per cent. of cases of inebriety no word of mine will awaken him, for he is luxuriating in a glorious vision of the promised land, the millenium to come when this miserable world, freed from the fetters of alcohol, insanity, immorality, imbecility and illegitimacy, shall be no more.

But it seems incredulous that any opinion emanating from an individual who makes a statement so wholly devoid of fact as the one which I am about to quote should have the slightest weight with any one capable of reasoning. Bishop Fallows, who is the champion of the Emmanuel movement in Chicago, has recently written a book entitled "Health and Happiness," which contains the following paragraph:

"The functional disorders of the nervous system are quite modern. They appeared some time in the last century and were never known before in the history of the human race. They are so common now that the physicians designated as neurologists could not take care of one-tenth of 1 per cent. of these cases.

Now I submit that if one were to characterize briefly the mental or moral status of an individual who made such a statement he would be reduced to the use of brief words and very few of them. Every one who has even an elementary knowledge of the history of the middle ages knows of the ravages of the so-called functional nervous diseases in that period. Tome on tome of literature and statistics attest it. In fact, I could successfully defend the thesis that functional nervous disease is no more common now than it was 300 years ago.

PSYCHOTHERAPY OF THE EMMANUELITES

As an example of the suggestion in psychotherapy, I may quote from a recent lecture of Dr. Worcester in New York, in which he told in glowing terms how insomnia and the alcoholic habit were overcome by suggestion. His suggestion for those who have insomnia was, "When you retire, think of the beautiful things of Nature. Imagine you are on the brink of a placid lake; then think of the soft moonlight as it falls on the peaceful water." Yes, indeed, if the baby suddenly cries while you are in the midst of such alluring thoughts, or your wife insists that you go down and put the furnace in shape for the night, keep in mind that the placidity of the lake has not been disturbed in the meanwhile and that the moonlight is just as soft as before your sweet dreams were rudely disturbed!

Fellow practitioners, let us have zeal of God, but let us have it according to knowledge.

37 West Fifty-Fourth Street.

Education of the Unfit.—Charles G. Kerley, in the *Archives of Pediatrics*, states that over-education of the unfit brings forth tastes, habits and desires of which the individual should know nothing, and is the cause of more thieving, gambling and all-around dishonesty than is well appreciated. When position and wealth and reasonable competency do not follow by legitimate means, others are readily seized on.

Original Articles

THE PRESENT RELATIONS OF PSYCHOTHERAPY

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The answer to the question whether the pathologist can ever draw a sharp line between organic disease and functional disturbance is yet far off. Newer methods are constantly narrowing the list of maladies of which the organic substratum has been hitherto unknown.

Every expenditure of nervous energy, every mental action, every emotion, is undoubtedly accompanied by a subtle change in a larger or smaller group of neurones, some breaking down of the complicated vital molecules into simpler ones more closely akin to the inorganic, more accessible to the microscope and the test-tube. Fatigued tissues can be recognized under the microscope, and when the balance between fatigue and repair is broken for too long a time permanent degeneration is manifest. It is more in accordance with our knowledge of tissue metamorphosis and of toxic action to assume that the material change is the primary one. The rapid action of many poisons upholds this view, which may fairly be expected to cover those poisons of internal origin.

The assumption of a general control of structure and action by thought, without knowing what thought is or where it has its origin, a well-rounded theory of the complete dependence of health and disease on the mental attitude, is a convenient generalization and opens up a picturesque pathway along which one may stroll at leisure with many diversions until he is brought face to face with some hard pathologic facts.

The hotbed culture of hybrid new thought is a rapid and easy process admitting of a theoretic perfection entirely unattainable as yet by the slow growth of biologic science based on physics, chemistry and anatomy.

For our practical needs it is desirable to bring as much of the borderland as possible within the limits of the known and measurable and to ascertain where they come together.

It is not so very long since the doctrine of the dependence on the bodily health of correct mental action, of the emotions, even of theologic views, a comfortable digestion, a happy life (in this world at least), was the one popularly taught. It was summed up in various proverbs, such as "*mens sana in corpore sano*," and the pun "whether life is worth living depends on the liver," etc.

Even in the confusion of claims of the various theories and specialties, each for itself, this doctrine, far from growing obsolete, continues to cover an enlarging field in diagnosis, and as morphology is being supplemented by biochemistry, it more nearly covers the whole. And not only for therapeutics in the narrowest sense, but for preventive medicine, it is by far the most potent theory for good.

Now in the minds of hundreds of thousands, perhaps more correctly millions, this relation is reversed. That "strong will with which anything could be done," and which was considered one of the good gifts of Providence, is now within the reach of any one who will put himself for a time under the influence of a stronger one or even of a meaningless verbiage.

The comfort and usefulness of decision and fortitude in bearing disease, as well as other misfortunes, is not to be underrated. The contribution to the happiness of many persons by instruction in firmness and serenity of mind given by so many sects of mental healing may be of great value. Whether the more recent instructions are more valuable and efficient than the old is another question.

But courage and patience are not new discoveries, nor are they the restoration of health. The invalid may do much and valuable work. In fact, a good deal of the best work in the world has been done by invalids; but it has been done in spite of disabilities, not by getting rid of them.

The normal control of the psychic centers over the functions of the rest of the body is only within a very limited extent a direct one. Strangely enough the connection is most easily interrupted where it is least roundabout, as in the paralyses and anesthetics. The very point at which the circuit seems most direct is that at which the psychic force meets its highest resistance, which may be raised or made absolute by organic disease. It is only when these paralyses and anesthetics are purely inorganic or functional, that is, when they depend not on the severance of organic connection between the psychic centers and the peripheral connections, but on the disarrangement of association centers, that the will or mind of the patient or physician can be made to influence them usefully. (This, of course, does not refer to conditions in which the training of a new set of muscles or even new centers can be made to take up the movements of others disabled.)

Nothing can be much more hopeless than an attempt to make the will control purely psychic manifestations of organic degeneration in "general paresis," for instance; and almost as strong an expression may be used of a great share of the melancholies and other forms of insanity with which as yet neither morphology nor chemistry have established a definite connection with tissue changes.

On the other hand, for instance, the beneficial effect of thyroid feeding on the mental condition in myxedema is very clear. No one doubts the effect of the nutrition on the emotions.

Mental, that is, cerebral, action is connected with physical, that is, sensation and muscular contraction, by a series of paths which have comparatively little direct relation with the so-called "vital organs." It is only when morbid activity of these organs reaches a certain intensity that it normally forces its way to the upper consciousness, that is, awakens the attention. But the attention may be oversensitized by morbid associations. Here is the crucial point in the diagnosis: Are such activities trivial or not? Can they be physically banished?

Voluntary control over the movements of organic life is not great. In a notorious but highly exceptional case many years ago a person kept up, day and night, a rate of respiration several times the normal and far beyond the limits of voluntary imitation without notable impairment of health in other ways and finally recovered by two applications of a saint's shin-bone. But one can not by an act of the will quicken the beats of the heart.

Psychical excitement, manifest or concealed, will accelerate the pulse considerably. A utilization of this fact has been made for getting a sort of involuntary confession from criminals.

The route of psychic influence on nutrition, on the metamorphosis of tissue, is almost entirely through the vasomotor system, the smooth muscles and the secretory nerves.

Blushing and paling, often dependent on entirely peripheral disturbances of cardiac and vasomotor nerves (for example, those caused by heat and by alcohol), may also be strictly physiologic results of psychic action, which in its turn may be normal or occasionally controlled by a "fixed idea," a "dread," or "obsession."

The movements of the iris are controlled by drugs, by the distribution of light, by organic disease, and also by emotions, which we assume to be the result of associations taking place in the cerebral cortex.

The muscular act of vomiting may be set in motion by direct irritation of the stomach, as in cancer, ulceration, gastritis and irritant emetics, by certain emetics acting on the medulla, by intracranial pressure, by irritants reaching no nearer to the stomach than the pharynx or even the mouth, by disgusting sights and smells (which is a form of psychic association); and again, in a form, not always easy of diagnosis, of wearing, dangerous, even fatal, neurotic vomiting, it may result purely from the "fixed idea." Here the psychic comes very close to the organic, for a constant complete emptying of the stomach, no matter whether under the influence of a cancer or an idea, is in effect the same.

A more pleasing demonstration of the influence of the mind on digestion is to be seen in the dyspeptic who enjoys and digests a "big dinner" but can not get along with the carefully limited scientific feeding. "Better is a dinner of herbs where love is than a stalled ox and hatred therewith."

But even if this universally acknowledged power of the mind over certain bodily functions, which seems to be considered by some a recent discovery and is by many sects claimed as their peculiar property, be much less than many theories would make it; if we admit its strict limitations as a cure (not merely as a mitigation and relief), we find it utilized every day by every sect, consciously, subconsciously, unconsciously or unwittingly. Can any self-critical physician of experience for a moment suppose, in the face of the constant and rapid changes in therapeutic theory, that the recoveries in all his cases are attributable to the exact scientific adaptation of the drugs he has administered? If his patients recover to-day simply because he has employed the most modern and scientific methods, why are his earlier patients still alive? Why do those of his neighbor who follows another treatment recover also?

Every such candid physician treasures in his memory, if not in his case-book, recoveries which he did not expect and could not explain; others which he knew had nothing to do with the drug or the dietetic treatment instituted; others still in which he more than suspected that the batteries and the vibrators had only a "moral" effect; with a small residuum in which he could not help recognizing the predominance of his own personal influence and teachings.

He is not so likely to plume himself or the latter as on his appendectomies, for instance (or was not until he learned that his successful mental devices had also received a name just as long, and better Greek). Is not this because he supposes that the one testifies to real professional skill while the other, if heard of at all, is apt to be attributed to nothing in particular or merely good luck? The fisherman much prefers talking about the trout which jumped at his carefully selected fly to

exhibiting the pout or eel which would gobble anybody's ignoble worm.

Is it possible to reduce the accumulated knowledge of the physician and the charlatan to a system? Like too much else of the experience of the busy man, the data of the practitioner are all too briefly recorded. If such episodes live in his memory they are likely to come to light with picturesque and dramatic distortions of years, chiefly as the basis of humorous stories at club suppers. The charlatan may be an enthusiastic, perhaps a learned one. He is more often a shrewd ignoramus or even a liar pure and simple. In the latter case he is no more likely than other manufacturers to give away his trade secrets. In the former case he is probably unable to do so in any language understandable by the common people. But with caution and patience he can be utilized.

Rough statistics, such as those collected by H. H. Goddard, based on interviews with patients and healers whom he thought to be honest, although uninstructed, reveal no astonishing proportion of recoveries; and the boasts of so-called religious leaders, and the recorded cures of these thaumaturgists (they are not in danger of being hidden) confirm these conclusions. The former set corresponds sufficiently well with the reports of scientific hypnotists; the latter can be matched in the recollection of many a practitioner who never suspected that he was stepping outside the plain practice of medicine into higher regions of psychotherapy.

The questions which arise in regard to modern practical schemes of mental healing are partly of principles, partly of methods and partly of persons; the most important, the fundamental one, that of the diagnosis of the known, acknowledged, organic, from the functional, inorganic or psychic, between the structural lesions and the maladjustments, should be settled before mental healing is invoked.¹

Is there underlying all the forms of cure, whether of the psychotherapist, the enthusiast or the utter charlatan, any common principle or condition which is an essential to recovery?

We must make the unpleasant, by no means flattering admission, that what goes to explain Lourdes or Ste. Anne de Beaupré must have its value in Paris or Nancy or Boston. Holy (even if dirty) water may be—in psychic analysis—the equivalent of bitter tinctures or animal extracts, or sugar plums.

Patients who like to narrate their cures like also to enhance the effect by stating that they "did not believe in it at all, but were persuaded by friends," and so on; but it is certain that faith, formally acknowledged, or unconsciously present, is a factor in all and the only factor in some recoveries. One of the curious contrasts in individuality is to be found in the effect of simple reiterated assertions, in one class of mind awakening only repulsion, in another intensifying and developing a nascent wish into a belief, or in a few even perhaps originating belief from chaos. No one knows this better and utilizes it to more advantage than the commercial and especially the medical advertiser.

The "otherwise minded," the man who really delights in opposition, is probably more highly endowed intellectually than his credulous brother. He is likely

also to be much more uncomfortable to himself and to his neighbors, much less profitable to the charlatan, and if his crankiness is brought to bear on his own health rather than on the conduct of the world in general he is a terror to his physician. Mary's little lamb followed her to school one day and undoubtedly remained as stupid as other sheep, but if she had been trying to make a pig a learned one she would have grasped the animal's tail and pulled as firmly in the opposite direction as possible.

When it is considered how many different disorders there are existing supposed to be amenable to mental treatment, and the infinite combinations wrought among them by individual peculiarities, heredity, education and environment, it seems that here more than in any other department of medicine each patient must be a case by himself. As to the development of this necessary faith it may in some be of that nature which attaches itself quickly to the nearest object. In many its development is capricious and dependent on some accident, some pleasing, apparently novel, aspect of a familiar idea. Comparatively few base their faith on a rational judgment.

Among all these is it possible to frame rules applicable by every one in procuring that confidence essential to success? It is the subconscious emotion, wish, longing, trust, confidence, rather than a logical conviction, which supports the forces working toward cure. Often the more completely unconscious it is the better, for it is less likely to be disturbed by intellectual doubt.

"The man convinced against his will is of the same opinion still."

The scoffings of the skeptic can be directed with less effect against a belief which rests on hidden foundations than against one which stands in full view with its weakness exposed. Faith in the occult and mysterious is in many persons easier to attain than confidence in a teacher, no matter how wise.

If from the effect of some unusual excitement on a predisposed constitution the subliminal consciousness becomes completely separated and assumes the control which should belong to the conscious reason, the conditions are ready for the rare miracle-cures which bulk larger in literature than in real life.

A successful scientific system of psychotherapy is as difficult to impart by formal instruction as is business shrewdness, social tact or political magnetism. Indeed, the latter simile carries suggestions which might lead us too far from the field of medicine. It would be as difficult to lead a student, sincere, well instructed, a little too sensitive as to his dignity, a little too fastidious, too careful of his scientific reputation, but without tact and common sense, to overcome these difficulties, to become a successful mind healer, as it would be to make a conscientious student of political economy into a successful "boss." It is largely a work of art, not a science; perhaps a work of Nature rather than either.

If we wish to fix more precisely the avenues of approach to the therapeutics of the lower consciousness, where it is now conceded that many psychoses principally have their stronghold, we might make a list somewhat like the following:

- A. Assertion, positive and reiterated.
- B. Instruction, persuasion and exhortation. Encouragement.
- C. Free confession, including the "cathartic" or analytical method of Freud.

1. Warning has been given by some of the early supporters of the religiotherapeutic movement, against the danger from its falling into too enthusiastic, but ignorant hands. The danger is undoubtedly a real one, but it is no more imminent, and possibly less serious, than may be found in the case of any other method (really useful or not) which appears in the guise of novelty. The protection is to be found in what is now and ought always to be an essential part of the system, the skilled careful diagnosis.

D. Deception. Placebos. Drugs in which both the patient and physician have a kind of half-belief.

E. Suggestion, hypnotic or waking. The word is often given a much wider application than was at first intended.

Reason, sympathy, sarcasm, concerted action, interesting occupations, are among the methods to be carried out through these paths. That any one of them is to be looked on as the only avenue in all cases is absurd. They are to be applied with the most careful adaptation, not solely to the name of the disorder existing, but with just as careful diagnosis of peculiarities of the individual case.

One might suppose a practitioner trained in the old-fashioned form of compounding a prescription to put his directions somewhat in the following shape, either in his own mind or on paper, if to be placed in the hands of an assistant:

The essential *active* elements: Reason. Sympathy. Occupation? Shock?

The *adjuvants*: Rest, feeding, seclusion, exercise, passive or active, massage. Occupation?

The *corrigents*: Sarcasm. Judicious neglect.

Flavoring: The favorite theories of the patient, social, moral, theologic.

Vehicle: Faith. Authority of the church. Love of the marvellous. Attraction of the crowd. Enchantment of distance.

Misce secundum Artem. With TACT.

Such a prescription is not to be had in the tabloid form.

Some of these ingredients call for important practical remarks. Encouragement can hardly be used to excess, except in the mixed cases in which too absolute confidence in recovery might lead to neglect of essential hygienic or medicinal measures. Few circumstances are more encouraging than a steady gain in weight. Feeding is an adjuvant.

It is surely better to give a proper dose of quinin than to tell a patient he will not have a chill the next morning, although there have been cases in which the patient recovered after swallowing the prescription instead of the medicine.

The fixed idea of chronic obstruction of the bowels is quite as effectually abolished by a dose of calomel or castor oil as by the most elevating exhortations. And yet there have been cases in which—

But the dosage of sympathy is that which requires the most careful adjustment. Too many patients, the chronic invalids, the neurasthenics perhaps incorrectly diagnosticated, have already had from their friends, the mother, the sister, the clergyman, or the doctor, too much of that enslaving narcotic. It may develop the trivial injury into a traumatic neurosis. It may prolong the indolence or aboulia due to a temporary cause, the neurasthenia which a moderate rest will restore, into a useless and joyless lifetime; and yet it is very hard to withhold it. Absolutely to omit it may be cruelty and disaster. The patient already accustomed to the overdose who comes into the hands of the neurologist should not have it reduced so abruptly as to cause shock or revolt, but later it may be taken away with a firm hand.

It is evident that sarcasm and neglect are to be introduced into the prescription with the utmost caution, and, at that, only in the rarest cases after a careful diagnosis.

As to the "flavoring," it is that which in psychotherapy makes a great part of the difference between the

sects. As in many other prescriptions, it is by the flavor alone that the patient thinks he knows what he is taking.

It is in favor of the present use of the word "psychotherapy" that as yet it carries with it no suggestion of a special theory, and it is to be hoped that its popular use will not warp and twist it into the trademark of an exclusive system. The normal and proper influence of the physician's instruction, the clergyman's kindly rebuke or words of cheer, must not be allowed to degenerate into a superstitious reverence.

Among these subjects there are two likely, from their comparative novelty and their distance from the commonplace methods, to awaken more discussion and difference of opinion than others. These are hypnotism and Freud's analytic method.

The power of hypnotism for evil and the range of its applicability for therapeutic purposes have undoubtedly both been exaggerated, certainly as regards ordinary everyday use. Whether its habitual use tends to weaken the normal will, whether under special circumstances it may be used for criminal purposes (explicitly denied by its advocates), and whether it may in rare cases get a control which other less sensational methods fail to secure, I do not undertake to say. The power of persuasion, with or without hypnotism, which one person may obtain over another either for evil deeds or virtuous determination, varies immensely. In alcoholism, for instance, in which special claims have been made, it may be reasonable, professional, or friendly inducements, or personal determination, which lead to the abandonment of the pernicious habit; and, on the other hand, it is only too well known that everything, reasonable or occult, punishment, deceptive medication, family distress, as well as hypnotism, utterly fail of any permanent result in a large proportion of cases.

The induction of sleep in cases of insomnia is well known to be a frequent desirable result of monotonous sounds and sights, that is, the cessation of all external stimuli and disturbing thoughts, a sort of hypnotic power not reckoned as a merit in the clergy.

The importance of hypnotism in the psychoses, with the exception of hysteria, in which it is little but a change of form, and some of the lesser ones, in which it is unnecessary, might be thought from the closeness of the relation between the remedy and the disease, to be at its maximum. By this time, however, there must have arisen from the experience of many candid or even enthusiastic men a most conclusive consensus of opinion that it has done nothing to displace in practice the non-hypnotic suggestion (to use an overweighted phrase), or in other words, the persuasion, instruction, re-education and suitable employment which are to-day among the most important resources of the enlightened alienist.

There are reasons why it is desirable to avoid hypnotism in ordinary use. The possible abuse for criminal purposes, the impairment of the patient's will, and the liability to induce too great dependence of the patient on the mere personality of the physician are not objections of great weight. As much may be alleged against powerful drugs, as, for instance, alcohol and opium.

Since nearly all other methods of reaching the mind of the patient depend on a confidence in the knowledge and professional skill of the physician, it is of great importance that he should not jeopardize his influence by a failure to hypnotize, and many high authorities agree that it is only a certain proportion of persons who are hypnotizable. An unsuccessful experiment will

materially impair the effect of the next attempt at rational persuasion.

Freud's method does not demand the induction of hypnotism, but an attitude of confidential trust evoked by long continued and careful questioning as to the earliest recollections which have given rise, through long trains of association, forcibly repressed or fallen below the threshold of present consciousness, to morbid psychic conditions largely of fear and depression.

The method has probabilities in its favor, but if it be possible in any given case to develop and strengthen what has been morbid suppression with its residue of doubt and fear into a complete rupture of associations, it would seem that such a short cut is preferable to the tedious questioning, which is almost certain to implant and vivify ideas of the very kind which it is desirable to get rid of. Some other plans of developing more speedily this desirable attitude of trust have been considered dependent on slighter grades of hypnotism, so-called hypnoidal conditions.

It is not necessary, if one intends to utilize the methods of Freud, to accept the extreme views of this acute psychic analyst, or to admit that every 'phobia has a sexual foundation. Even if it be true that this potent factor in the emotional life does not always, for very obvious reasons, receive the consideration it deserves, it is surely not the only one. Other motives, indeed, other motives which many a person prefers to ignore, may have as powerful an influence in the emotional development. It is necessary to accumulate a wider experience under different social conditions and with a greater variety of personalities before we accept so nearly an absolute connection between a single class of emotions and so narrow a clinical group.

By whom should the treatment be carried out? Obviously by the physician who makes the diagnosis, who should know better than any one else what is best adapted to the case, or else under his immediate direction, if he have the requisite characteristics, the good sense and the tact, which are of far more consequence than any details of method; if to an assured diagnosis he adds the firmness to carry out what he sees to be needed.

But it is true that he may be an excellent therapist and yet be lacking in some of the qualities desirable in the care of functional cases in general, as well as in the case before him.

Circumstances may be such that he can not undertake it. The method of Freud, for instance, demands a vast amount, not only of time but of patience, and although there are others which may lead to the same result more promptly, there are few of any kind which can be carried out by the physician in the dispensary or the general hospital. It is not every man who can listen sympathetically to a daily rehearsal of imaginary self-developed woes, or the maudlin details of a self-accuser.

It may be further noted that ignorance may have its advantages as well as its dangers. The complete diagnosis by exclusion is not always possible to every man in every direction; and between the same man acting as diagnostician and as therapist there can be no real intellectual gap. A nervous patient may be a shrewd observer. He may detect or suspect from the words or the manner of his healer that the diagnosis is incomplete and that the positive assurances are not quite sincere. There are few errors more mortifying, if not worse than mortifying, than overlooking an organic cause for symptoms which the patient must be assured

are purely nervous. The scientist may be obliged to hedge a little for his own sake. But between the physician and his assistant, medical or otherwise, no matter how well instructed and loyal, there may be left a gap wide enough for doubts to shrink into the background and leave to the therapist the full advantage of absolute confidence in which the timorous patient can detect no weakness.

A very recent movement for combining the work of the physician and the clergyman, the diagnostician and the lay therapist, offers this among some other advantages. The bright light of enthusiasm, the uplifting of religious faith, the feeling of sympathetic companionship, perhaps a little of the "crowd madness," transform the scientific opinion into a moving force. Words of cheer, advice, appropriate music—one of the most powerful of emotional stimulants—may be addressed to dozens as well as to units and each may rightfully find his individual needs as carefully ministered to as if he had received a few hasty words and a scrap of paper from the hospital out-patient doctor, who can by no possibility give adequate thoughtful attention to each of his "nervous" clients.

It has been said, even by physicians, that an antagonism to psychotherapy exists among their brethren. It can hardly be true as regards the principle itself, but only against the extravagant claims based on a new nomenclature, against its misapplication, and especially the disgust with a multitude of quackish practices whose genetic relationship can not be denied, but with which all fellowship should be shunned.

The specialist who sees nervous disorders which, as he knows, depend on organic changes in the nervous structure, not naturally reprobates as absurd and often cruel the effort to make a patient believe that a proper frame of mind is alone sufficient to get rid of the tumor, the inflammation, the toxin, the degeneration. But he can only be thankful if the patient can be taught to use another set of muscles to accomplish lost movements, to bring his will to bear on what is normally done automatically, or at least to bear unavoidable defects and suffering as well as possible. But he ought not to be allowed to cherish ideas which he can be shown are morbid or baseless or to suffer incapacities which can be removed.

An objection to this alliance has been heard from the other side to the effect that the church is deserting its proper work in administering to the bodily as well as the spiritual wants of its disciples.

As to what the proper function of the church as an organization may be, it does not become me to express an opinion, but considering the example and teaching of its head and the zeal with which these have been followed by so many of his disciples with no disastrous results for nearly 2,000 years, the outlook does not seem to an outsider alarming.

Maternal Impressions.—C. H. Melland, in the *British Journal of Children's Diseases*, states that the belief that the fetus may be influenced by impressions received by the mother during pregnancy is as old as history and, like other superstitious ideas which are the residue of deeply ingrained mental conditions dating back into the age of barbarism, it is displaced only with difficulty. Even in the present day, the possibilities of coincidence are greatly underrated, mainly because those cases are placed on record in which the cause and effect seem satisfactorily established, while the far more numerous instances in which coincidence fails to produce any startling effects are silently passed over.

SANITATION IN THE PHILIPPINE ISLANDS SINCE AMERICAN OCCUPATION,

WITH PARTICULAR REFERENCE TO REDUCTION IN MORTALITY BY ELIMINATION OF INTESTINAL PARASITES, ESPECIALLY UNICINARIA

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MANILA, P. I.

In response to the kind invitation of the Association to prepare a paper on tropical sanitation, it was not considered amiss to give a brief description of the work which has been done in the Philippine Islands, in order that the profession at home may be in a position to judge whether the same high standard achieved in Cuba and Panama and other American tropical possessions nearer home has been reached there.

The Philippine Islands are so far away from the United States and it so frequently happens that conditions there are not known that I will take the liberty of giving a brief description of the islands as they appeared at the time the United States took possession of them.

GEOGRAPHY OF THE ISLANDS

The group is composed of about three thousand islands and extends from 21° 25' latitude to 4° 45' latitude, and from 116° to 127° longitude, has an area greater than the states of Pennsylvania, New York, New Jersey and Maryland, and has a coast line equal to that of the United States. There are two prevailing winds during the year, one known as the northeast monsoon, which blows almost continuously from November to April, and the other known as the southwest monsoon, which blows from April to November, the latter being the period during which the destructive typhoons occur. These conditions produce a climate which varies greatly in different portions of the islands, in fact, the rainy season on some parts of the eastern coast occurs during one monsoon period, and on the western coast during the other monsoon period. In general, it may be said that the dry season, in which there is an average rainfall in Manila of 379.5 millimeters, corresponds to the period of the northeast monsoon, and the rainy season, during which there is an average rainfall of 1,537.1 millimeters, corresponds to the period of the southwest monsoon. The temperature varies from an average of about 80 F. in the lowlands to an average of about 75 in the mountains of Benguet, where the summer capital of the Philippine Islands is located. The lowest temperature of the lowlands is about 65; the highest rarely goes above 95 F. In the mountains it ranges from 35 to 80. The conditions as to warmth and moisture are such that mosquitoes, other insects, bacteria and parasites thrive throughout the year, and cold, that great aid of the sanitarian of the temperate zone, is not available.

With the exception of three large valleys in the Philippines, the interior is very sparsely inhabited, most of the towns being found along the coast. Three valleys, the Cagayan and Dagupan, in the island of Luzon, and the Cotabato, in Mindanao, are traversed by great rivers, of which the Cagayan in Luzon is navigable for a distance of 200 miles. The soil in these valleys is as rich as any found in any portion of the world, but as yet the conditions are such that the mosquitoes breed in abundance.

SANITARY CONDITIONS BEFORE AMERICAN OCCUPANCY

It is estimated that, at the time of American occupation, the population of the islands was about six and one-half millions, and the death rate so high that the population had been practically at a standstill for many years. There are no records in existence in the Philippines from which even a rough estimate could be formed as to what the actual death rate had been, but judging from the mortality at present, with the positive knowledge that a large reduction in the death rate has been brought about, it certainly must have been over 50 per 1,000.

At the time of American occupation, at least forty-thousand persons per annum died of smallpox. So far as could be ascertained by a careful sanitary survey, not one artesian well existed. The examination of water from practically every section of the Philippine Islands showed that all wells, rivers, springs and other surface sources contained amebas.

There was no sewer system in Manila, a city of over two hundred thousand inhabitants, and the night-soil and kitchen and other waste was disposed of in a most crude manner.

The water supply for the city was derived from a river, the watershed of which was inhabited by about ten thousand persons who considered it their inalienable right to bathe both themselves and their animals in the river and otherwise pollute the same.

In the city about thirty-one miles of esteros or canals existed which were nothing more than open, filthy water-courses into which all waste material, mostly liquid, found its way.

There was practically no provision for the care of the insane, a common custom being to tie them to a stake with a dog-chain.

About two hundred lepers were taken care of at San Lazaro and the Palestine Leper Colony for charity's sake only; four thousand or more roamed about the islands at will.

The remains of human beings were interred as many as four or five in one grave, the remains of former persons being frequently thrown carelessly about in order to make room for a more recent corpse.

Cases of and death from beriberi in penal institutions were very numerous. Malaria claimed its victims by the thousands. On account of there being no adequate quarantine system, diseases like plague, cholera, leprosy and smallpox were frequently introduced from the great infected centers of the Orient. Amebic dysentery claimed its victims by the hundreds without any hope of relief. Devastating cattle diseases were literally sapping the wealth out of the country. Great epidemic diseases like cholera sometimes claimed as many as a thousand victims a day in the city of Manila, and at times are said to have depopulated entire villages. Bubonic plague was found in Manila some time after American occupation.

SANITARY CHANGES

Pleasing as it might be to state that all the foregoing conditions have now been entirely eliminated, yet in all candor it must be said that the work is so enormous, the funds so inadequate, and trained helpers so few that much yet remains to be done. Yet when it is remembered that the Philippine Islands are eleven times larger than all the remaining tropical possessions of the United States, that it requires over six months to have

even small requisitions for supplies from the United States filled, and that their financial resources are meager, it will not be considered strange that the conditions have not yet become perfect.

Soon after occupation, the general campaign of cleaning and scrubbing so characteristic of the American sanitarian was at once inaugurated throughout the islands. The health requirements were crystallized into compact shape and enacted into laws. About three hundred boards of health were organized, so that the needs of the different municipalities could be systematically studied, and the results enforced. Garbage collection, sewage disposal, street sweeping, the isolation of dangerous communicable diseases, etc., all received attention, and improvement soon became everywhere apparent.

The vaccination of over six million people in a more highly educated country with the best transportation facilities would be no small undertaking. The work in the Philippines was begun by permitting each municipality to vaccinate on its own account, but after several years' faithful trial this scheme was abandoned, and a plan of systematic vaccination by groups of about twenty-five vaccinators directly under the charge of a competent physician was started in various parts of the islands. The plan found to work best was to commence on the border of a province and systematically work across it until every person was vaccinated. In the provinces near Manila, which represent a population of about a million, there were formerly six thousand or more deaths from smallpox annually. Last year after the systematic vaccination was completed, not one death occurred from smallpox.

To-day dozens and dozens of artesian wells exist, and in many localities the death rate has dropped as much as 20 per 1,000 after the use of artesian water became general.

The new gravity water system, which brings water from an uninhabited watershed, will be completed July 1, 1908. The new sewer system for Manila, which is being constructed at a cost of nearly \$2,000,000, will be ready for use next year. In the meantime, however, the sewage is being disposed of in a system of septic tanks which are as effective as could be desired, and have deservedly earned for Manila the name of the city without odors. There is no longer any pollution of the canals or the Pasig river. The thirty-one miles of esteros or canals have been dredged and cleaned of the filth which accumulated during the several centuries. The moat which surrounded the walled city has been filled up, and is now being parked. Thousands on thousands of malodorous wooden structures used over tight vaults have been replaced by the modern enameled closets, and hundreds of acres of lowlands have been raised above tide level and drained. The present watershed is patrolled by United States troops to prevent pollution of the water supply, and a modern ice plant produces daily 100,000 pounds of ice and 5,000 gallons of distilled water, which is sold to the public by the Government at a nominal rate.

Hygiene is taught in the 3,500 public schools of the islands, and the simple rules of health are repeated like a catechism in thousands of Filipino homes.

A hospital of 160 beds was promptly established for the treatment of civil employés, and over half a million dollars have now been appropriated for a new hospital which will not only be large enough to meet the

needs of the government employés, but will be used as a general hospital as well. The same is now actually under construction. A modern hospital building for the insane is already completed, and facilities are available for the care of 500 of those unfortunates.

In the establishment of the leper colony on the island of Culion one of the most extensive segregations recorded in history is being undertaken. Of the 4,000 estimated lepers in the Philippines only about 1,000 remain to be collected. (It may be remarked in passing that the policy of segregating lepers will apparently be fully vindicated. Our experience during past years has been that in those provinces from which the lepers were removed and in which more than 300 new cases have appeared annually, not more than fifty new cases were found.)

The burial of the dead is now properly regulated in over half of the provinces.

The free distribution of quinin has greatly reduced the incidence of malaria. Some drainage and other mosquito extermination has been undertaken, but lack of funds and trained assistance has prevented much headway in this direction.

Great advances have been made in prison sanitation. Diseases like beriberi have been almost eliminated and the death rate brought down to normal.

The management of that great devastating disease, cholera, has been so perfected that even with the funds and help available in the Philippine Islands only dozens now succumb where hundreds died heretofore, and almost positive assurance can be given that the disease can be eradicated from any community in a period of a few weeks. This last fact has done much to allay public apprehension; panics of fear have entirely disappeared, and a community in which cholera makes its appearance moves along in the even tenor of its way as if nothing unusual had happened.

The foregoing sanitary measures, as well as many others too numerous to mention, have produced the same satisfactory results that have heretofore been recorded in other communities in which they have been faithfully applied; the death rate has no doubt been reduced by ten or more per 1,000, which in itself means the saving of many thousands of lives. The morbidity has also been lessened, but even after all of this was brought about the feeling still remained that more should be accomplished.

However desirable the necessary cleaning up and ordinary sanitary measures may be to a community, still our experience in the Philippine Islands leads us to believe that such work alone is not nearly so effective in improving the public health as has heretofore been believed to have been the case. Experience in eradicating yellow fever from Cuba by the elimination of the mosquito and not by the removal of filth, the destruction of the rat for the eradication of plague, the killing of anopheles for the suppression of malaria, all go to demonstrate that there are other more important factors to be taken into consideration than the mere cleaning up in improving the public health.

CAUSES OF MORTALITY

Practical work and experience change many apparently well-grounded theories.

In casting about for the cause of the still high mortality in the Philippine Islands two factors seem to stand pre-eminently to the front. One is the infant

mortality, and the other intestinal parasites. After some consideration, infant mortality was dismissed because this is a subject which is much the same all over the world, and has been given much study and attention by persons working in communities where ample funds and trained help are available, and still no great progress has been made, so that we concluded to take up the question of intestinal parasites first.

A fortunate incident occurred at this time which aided materially in the study of this problem. The death rate in Bilibid Prison under the administration of laymen had increased from year to year until the appalling figure of 238 per 1,000 was reached. The management of the sanitation of the prison was then transferred to the Bureau of Health. Ordinary sanitary measures, like relieving the overcrowded condition, improving the methods for the disposal of night soil, regulating the diet along scientific lines, improving the drainage, etc., in a period of six months succeeded in bringing the mortality down to about seventy per 1,000; but persistent efforts carried on for nearly six months more failed to lower it further. Prisoners seemed to be dying from illnesses which should not have killed them. At this juncture a systematic examination of the stools of prisoners was begun. The same was undertaken by examining all the prisoners in a brigade, usually 300 in number. In the first batch examined most astonishing figures resulted.¹ Eighty-four per cent. of the prisoners were found to be afflicted with at least one intestinal parasite. 50 per cent. had two or more, and 20 per cent. had three or more, and of the total number examined 52 per cent. had hookworms.

Active treatment for eliminating the intestinal parasites was begun in one brigade, and after this work was completed it was noted that the incidence of disease in this brigade was much less than among the remaining brigades which had not yet been so treated. The work was actively continued until all the prisoners, numbering over 3,500, were examined and the intestinal parasites removed. The percentage of parasites in the remaining group was about the same as that given for the first brigade. After the treatment was well under way the death rate in the prison gradually commenced to fall, and several months after the intestinal parasites from the last prisoner under observation had been removed the death rate dropped to thirteen per 1,000 and has remained so up to the present time, a period of over a year. These figures show in a most convincing manner the effect of the intestinal parasites on the general health. It seems probable that they so reduce the resistance of the individual that he becomes a ready victim to any intercurrent disease which he may contract.

Records of over 1,000 stool examinations made of persons at large in the Philippine Islands show that practically the same condition of affairs exists among the general population and that as soon as the intestinal parasites of the inhabitants can be removed and the environment made so that they will not readily become reinfected it may be confidently predicted that the death rate in the Philippines will be lowered to figures corresponding closely to those in temperate climates.

It will thus be seen that the magnificent work which has been done in connection with intestinal parasites by Stiles Loos, King, Ashford and others has pointed the way toward a sanitary reform which will no doubt stand in medical history as one of its greatest triumphs.

CRANIAL TECHNIC*

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The most frequent causes of death following operations on the brain are shock and sepsis. Shock is given by Horsley as the cause in 8 per cent. of tumors diagnosed and removed and in 37 per cent. of those inaccurately diagnosed and not removed. Sepsis increases just in proportion as one is obliged to drain and is unable to heal by primary union; 30.8 per cent. of deaths is the usual proportion.

THE PRIME REQUISITES

To avoid these dangers the following five requisites must be secured:

1. Instruments which will open the skull quickly over any desired area and to any extent. The preferred instruments are the motor, saw and guard, osteotome, drill, fraise and measure used by me.

2. A method of craniocerebral topography which will permit an accurate exposure of the intended cerebral area. It should be so accurate that the flap is neither too large nor too small. Chipault's is the best method, as it adapts itself to the skull of all ages, races or individual peculiarities.

3. Osteoplastic flaps cut so that they will expose the desired area in the easiest manner.

(a) For the lateral region the flaps radiate like the leaves of a fan, the broader part being toward the vertex, the narrower extremity or hinge at the temporal fossa. These flaps are frontal, rolandic, parietal or occipital. They are four-sided as 

(b) For the exposure of both sides at once, bilateral flaps with their hinges in the temporal fossa, or single flaps with their hinges in the median line, are used. These flaps are either frontal, sagittal, occipital or occipito-cerebellar. The bilateral flaps are four-sided as

 The single flaps are usually six-sided as 

4. The replacement of the bone flap in every possible case or the covering of the defect with an accurately fitting foreign material (celluloid or aluminum). I prefer autoplasty to heteroplasty because bone implanted when still in connection with its periosteum undergoes an immediate reparation if the circulation is not disturbed. Where the apposition is the most intimate, there one will find the least disturbance in healing, the slightest bone absorption, and the surest safeguard against infection. Necroplasty is my second choice.

5. The assurance of a perfect hemostasis both in the preliminary as well as in the final steps.

These five points are to be mastered in any operation in which the cerebrum is exposed for the removal of a tumor, the draining of an abscess or cyst, or for the relief of an injury.

I would divide every operation into two steps, in which the preliminary step concerns only the skull, etc., and the final step, the cerebrum.

OPERATION—I. PRELIMINARY STEP

All drugs are given up several days before operation.

A record of pulse rate and blood pressure is taken twenty-four hours before operation.

1. Shattuck and Garrison before the Philippines Medical Association, 1908.

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

The patient's head is shaved twenty-four hours before operation and Chipault's measurements made, recorded and marked with a fuchsin pencil on the scalp just before operation. Chloroform is preferred, though ether is often used if the head is raised over 30 degrees.

The patient is placed on the table with the head of the table raised between 15 and 30 degrees. This position has been sufficient to stop the bleeding from the veins and to lower the arterial pressure. I have so far not been able to compare its value with the rubber suit and temporary compression of the common carotids (Crile) or with the sequestration-anemia proposed by Dawbarn. If either of these methods will improve the arterial pressure in greater amount than elevation alone, and with no greater danger of inducing sudden syncope, I shall certainly use them.

The sphygmomanometer is placed on the arm and blood pressure is recorded by the anesthetist. A sudden fall of blood pressure will warn the operator of an impending collapse. Horsley says that attention to this point will permit us to avoid the 25 per cent. of the sudden deaths following prolonged operations, and will force on us the necessity of two-stage operations.

The tourniquet is applied. I prefer one based on Lambotta's idea of a local anemia in the scalp. If this is not used, buttonhole stitches, Kredel's plates and the T-forceps of Chipault may be used.

The flaps are either four or six sided. Each limb is cut with a single stroke of knife. The periosteum is retracted on the bone surrounding the incision only.

A drill is applied to each angle (4 or 6 holes) and the depth of the holes is measured. If the disparity between holes is greater than 2 mm., that is, 3 or 4 mm., one or more holes should be interposed and measured. Thus it may be ascertained whether the incline between holes is gradual or abrupt. If gradual, the saw should be armed with guard for 2 mm. less than largest measures and the bone divided with the saw at right angles to the bone-surface. If abrupt, the saw should be placed at an angle of 10 to 30 degrees to the bone, which diminishes the depth of the saw cut over the perpendicular cut about 2 mm. more. In this manner injury to the dura may be avoided without changing the guard even when the disparity between holes is as great as 4 to 5 mm. If one prefers, the guards may be changed, or two saws with different guards may be used. I always purpose to leave an uncut area of bone over the dura of at least 1 or 2 mm. If muscular tissue is very thick I use a fraise attached directly to the motor or by means of a short cable.

An osteotome (McEwens) is inserted into the slit, and with a few strokes of the mallet the bone (that is, the vitreous plate) is cracked. The point of inserting the osteotome is where the bone is the least divided. The bone is now lifted from the dura by 2 to 3 spud-like instruments, two of which are always placed near the desired line of breakage. When these are inserted a movement of depression to break the bone is made rapidly and with some force in order to snap this exactly between the two drill-holes.

Hemorrhage from the bone now requires attention. I make use of (a) Horsley's wax, consisting of vaselin 50, paraffin 50, and phenyl 5 parts; (b) decalcified bone plugs; (c) boiled wooden match-sticks; (d) cotton wool; (e) crushing forceps.

The reflected flap is protected by a towel and the dura mater is exposed.

II. FINAL STEP

The condition of the dura is now noted: (a) its change in color; (b) its vascularity; (c) its thickenings; (d) its inflammatory changes, and (e) its pulsation or want of pulsation.

If the pulsation is wanting a tumor, pus or blood between the membranes, or severe contusion of the brain is suspected.

The dural flap is cut 1 cm. from the edge of the bone and on all but one side of the exposed area. This flap is lifted, and the tumor or disease is revealed immediately if it arises from the dura, the tentorium cerebelli or falx cerebri. The tumor or disease arising from this structure either pushes aside the convolutions and forms a bed for itself or it infiltrates the cortex or bone. The former is usually a fibroma, a syphiloma, a tuberculoma, or a traumatic or a hydatid cyst, while the latter is sarcomatous or the diffuse variety of tuberculosis or syphilis. If the process arises from the pia or cortex, the tumor or disease appears as (1) a vascular prominence surrounded with edematous brain tissue; (2) an encapsulated non-vascular mass; (3) a cyst containing serous or bloody fluid.

Growths of the first variety, among which are included angiomas and the racemose aneurisms, demand the most careful ligation of the vessels about their periphery before any attempt at enucleation is undertaken, as hemorrhage into the brain tissue favors infection (encephalitis) and destroys the tissue. Growths of the second variety (fibroma, tuberculoma, endothelioma) can be enucleated with a spatula if care is taken to avoid injury to the cortical tissue.

The cysts found here are congenital, traumatic, gliomatous or sarcomatous. So deceptive are the latter two varieties that the inner side of the whole extent of every cyst should be examined for tumor tissue. For the congenital cysts or those of unknown origin, long-continued drainage has been curative. For the traumatic and sarcomatous cysts, extirpation of the cyst wall is necessary. In the case of the latter, some brain tissue is usually sacrificed. These cysts are liable to be multiple and to have many prolongations, so that they must be followed at times a great distance from the original area exposed.

Tumors or diseases situated in the subcortical area are located by puncture, if liquid; by palpation, with or without incision, if solid, or by electric stimulation. They are found at a distance of 1 to 6 cm. from the cortex, and the convolutions over them may or may not be flattened and the sulci effaced. The solid tumors are usually gliomata and sarcomata, while the liquid tumors are congenital, of unknown origin, or are classed as traumatic, porencephalic cysts. These cysts are curable by drainage alone, though extirpation, if advisable, would more surely cure them. Encapsulated solid growths are extirpated with resection of enough brain tissue to insure tamponade of the cavity and to avoid the possibility of recurrence.

Diffuse processes, tumors, scleroses and multiple hydatids are inoperable, except in so far as removal of a part may relieve symptoms of pressure. This can be done only when the hemorrhage is not liable to be great and where the lateral ventricles can be avoided.

During the second part of the operation two accidents are liable to occur, namely, hemorrhage and opening of the lateral ventricles.

Every vessel must be ligated carefully before cutting. This should be done in a delicate manner and without traction on the vessel in tying the knot. One knot is sufficient. Mosquito-forceps or a round needle, armed with a pliable ligature, is the best. Capillary hemorrhage is managed with moist gauze at 115 or 120 degrees applied to the area. Venous hemorrhage or oozing is treated by administering oxygen.

The longitudinal or transverse sinus or any large vein is closed by the total or lateral ligature or by suture. If hemorrhage can not be controlled in this manner, the best results have been obtained by tamponade and compression by the flap replaced.

The reason for careful hemostasis in this stage is (1) to limit the injury to the cerebral tissue by the blood infiltration; (2) to avoid the application of heat, and (3) to avoid the use of the tamponade. Careful hemostasis limits as well the danger of a late encephalomeningitis.

The second accident occurring during this stage is the opening of the lateral ventricles and the escape into them of the fluid washing, of the detritus of the tumor or of the brain tissue or of blood, which will form a nidus of infection. The mere opening of the ventricle, if one can see it at the time and avoid its infection by the admission of foreign material, is not dangerous.

If the operation has proceeded without accident and hemostasis is complete, the dura is sutured, the bone is replaced and the skin is sutured. A primary union is the rule. If the wound must be tamponaded or drained, the bone flap is either cut away to give exit to the tampon or drain, or the flap is replaced over the tampon for forty-eight to fifty-six hours and then is lifted, the tampon removed, and a small rubber drain or gauze substituted for it. After this the dural flap is sewn and the bone flap replaced and sutured except at exit of the drain.

POSSIBLE LATER COMPLICATIONS

During the after-treatment certain accidents may take place: 1. Shock may be seen in prolonged operations with hemorrhage or after large tumors have been removed and the cerebral statics have been changed by the space left. In such conditions the acute cerebral edema of von Bergmann occurs. To avoid this, Horsley tampons and gives counter-pressure through the flap.

2. Hyperpyrexia: This occurs after both severe and moderate handling of the brain, especially if the ventricles have been opened. The cause is toxicity of the products of secretion of the neoplasm, infection itself or lesion or irritation of the thermal centers.

3. Encephalomeningitis may be caused by injury to the cerebral tissue or by infection from the patient's blood or from without. It is usually seen during the first month after operation, coming on slowly and announced by localized convulsions, contractures, paralyses, somnolence, mental torpor or delirium.

4. Hernia may be present at time of operation as a tumor of the base or as a voluminous tumor of the centrum ovale, or at a later period in the form of encephalitis.

OPERATIVE RESULTS

1. *Operations on the Cerebrum.*—(a) Krause and Oppenheim¹ give statistics of 27 tumors of all kinds. Of the patients, 11 per cent. were cured, 22.2 per cent. improved and 55.5 per cent. died.

(b) Horsley² gives accounts of 55 tumors of all varieties. The regionary mortality was as follows: Motor zone, 3.7 per cent.; parietal zone, 5.26 per cent.; frontal zone, 7.69 per cent.; temporal zone, 8.3 per cent. The recurrence and mortality, according to tumor, disease, etc., were as follows: In glioma and sarcoma, 87.7 per cent.; in endothelioma, 12.5 per cent.; in tuberculoma, 50 per cent.; in gummata, none; in fibromata, none, and in cysts, none.

(c) Duret³ reports 400 cases of all kinds, of which more than one-half were gliomata or sarcomata. The mortality was 19.5 per cent. The patients cured were 7 to 8 per cent.; those benefited by amelioration in the headache, vertigo, stupor, convulsions and paralyses, were 73.25 per cent. There was restoration of vision in 60 per cent. of the cases; partial restoration of vision in 28 per cent., and life was prolonged for several months in 33.5 per cent.

(d) Alessandri⁴ gives 22 cases of tuberculomata, in which 86.36 per cent. of the patients were cured.

(e) Duret³ gives accounts of 33 cases of tuberculomata, in 69 per cent. of which cures were effected.

(f) Stransky⁵ reports 18 cases of syphilis. In 15 cases the lesions were gummata. Of these patients 60 per cent. were cured or greatly improved; 40 per cent. were not benefited because the diagnosis was not accurate and the gumma not found or the process was too extensive. Of 3 patients with pachymeningitis, 33.3 per cent. were cured.

2. *Operations on the Cerebellum.*—(a) Horsley² gives the regionary mortality as 10 per cent.

(b) Alessandri⁴ reports 6 cases of tuberculomata, in which 33 per cent. of the patients were cured for 2½ to 10 months.

(c) Borchardt⁶ gives accounts of 101 cases of glioma, sarcoma, etc. Of these patients 11.8 per cent. were cured; 16.8 per cent. improved; 11.8 per cent. died as the result of the operation, and in 59 per cent. of the cases the lesions were not found. He also gives 14 cases of cysts, in 92.8 per cent. of which cures were effected, and 21 cases of tuberculomata, in which 57 per cent. of the patients died of shock; 38 per cent. withstood the operation, of which 37 per cent. died of miliary tuberculosis, and 63 per cent. lived from 4 to 13 months.

(d) Stransky⁵ reports 2 cases of gummata, with a mortality of 50 per cent. and 50 per cent. completely cured.

Cerebellopeduncular and Acoustic Nerve.—(a) Borchardt⁶ reports 19 cases of fibromata. Of the patients, 15.5 per cent. were cured, 5.5 per cent. lived over one year, and 73.5 per cent. died. In 5.5 per cent. the fibroma was not found and not removed.

(b) Krause⁷ gives 9 cases, with 66.6 per cent. of cures and a mortality of 33.3 per cent.

Pituitary Body.—Horsley² reports a mortality of 33.3 per cent., 66.6 per cent. cures from operations for adenoma and adenosarcoma.

From these statistics of cranial surgery the following conclusions may be drawn in regard to tumors. In glioma and sarcoma, recurrence and mortality is the same as in other regions of the body.

2. Lancet, 1906, viii, 52, and Jahrsbericht für Chirurgie No. XII, 1906, p. 402.

3. Tumeurs de l'encéphale.

4. Ann. Surg., 1906, II.

5. Mitt. u. d. Grenzgeb. d. Med. u. Chir., 1906.

6. Arch. f. Klin. Chir., lxxxi.

7. Arch. f. Klin. Chir., lxxxi.

1. Wien. med. Wchnschr., 1906.

In regard to tuberculomata, statistics are as yet bad and uncertain in compilation. Surgery, when indicated, is better than serum therapy.

In syphilis, surgery is good enough to be tried after six weeks to three months of medicinal treatment.

Fibromata, non-malignant cysts and endotheliomata offer the best curative results and the slightest mortality. The endotheliomata recur in 12 per cent. of the cases.

The statistics on the operative treatment of meningitis lead to the following conclusions: Diffuse tuberculous and syphilitic meningitis offer no chance for surgery.

In circumscribed tuberculous and syphilitic meningitis Alessandri's and Stransky's statistics show a favorable percentage.

Circumscribed suppurative meningitis from trauma or extension from nose, throat or ear is curable.

In 10 cases out of 15 of otitic origin the patients were cured (Hinsberg⁸).

McEwen reports cures in 6 out of 12 cases.⁹

Amberger¹⁰ and Witzel¹¹ report cures in 2 cases of traumatic origin, the one from a punctured wound of the cervical portion of the spinal canal, the other from a fracture of the base of the skull involving the temporal bone.

Diffuse suppurative meningitis has been apparently cured by Poirier, Witzel¹¹ and Kümmel.

Surgical treatment demands a more extended application.

Statistics on encephalitis show that five patients were cured last year of traumatic encephalitis.

When symptoms of pressure exist and the disease or the tumor is not or can not be removed the operation for decompression is indicated for the following reasons:

1. It is an operation without danger.
2. The optic atrophy disappears in 6 to 8 weeks if operation is early, according to de Schweinitz.¹²
3. According to von Bergmann,¹³ the patients in 65 per cent. of cases have shown amelioration of cephalalgia, stupor, vomiting, convulsions, paralysis and optic atrophy, for periods ranging from 1 month to 1½ years.
4. Borchardt⁶ says that in "pseudotumors and meningitis serosa with hydrocephalus it has been curative."

The operation may be performed (a) in the right parietal region, according to Säger,¹⁴ (b) in the right parietal region with a 6x8 cm. removal of bone, according to Frazier,¹⁵ (c) in the right temporal region with vertical incision on one or on both sides, if thought necessary, according to Cushing,¹⁶ and (d) in the cerebellar region, according to Weisinger.¹⁴

In any case the dura may be excised, divided or left intact. Opinions are divided.

The rule is to operate where a tumor is suspected. If a diagnosis of location can not be made, select one of the three regions—temporal, parietal or cerebellar.

The time for operation is the beginning of optic atrophy.

No mention has been made in the paper of the operations on the cerebellum. This omission is purposely made, because I am not yet satisfied that the technic

is what it ought to be nor have I anything to suggest which is any improvement on the methods already initiated by Horsley, Krause, Cushing, Frazier, Borchardt or Weisinger. Thirty-two lantern slides were used to demonstrate the method of flap formation, etc.

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INTRACRANIAL COMPLICATIONS OF ACUTE AND CHRONIC MIDDLE-EAR SUPPURATION

THEIR SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT *

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As I have several times written on one or more phases of this topic, I must ask your indulgence if I repeat statements that have already been presented in previous communications. The reason is obvious; first, because there is nothing new on the subject, and second, because the ground has been amply covered by many of our co-workers in this field during the past three or four years.

In discussing the intracranial complications of otitic origin, I shall place them in the order in which I have most frequently encountered them, which is as follows:

1. Pachymeningitis.
2. Epidural Abscess.
3. Thrombosis of the Sigmoid Sinus.
4. Meningitis of the Serous Type.
5. Thrombosis of the Jugular Bulb.
6. Thrombosis of the Internal Jugular Vein.
7. Brain Abscess, Middle and Anterior Fossa.
8. Cerebellar Abscess.
9. Meningitis of the Purulent Type.
10. Encephalitis.
11. Subdural Abscess.
12. Thrombosis of the Petrosal Sinuses.
13. Thrombosis of the Cavernous Sinuses.

PACHYMEINGITIS, KNOWN AS PACHYMEINGITIS EXTERNA

Cause and Site.—This condition occurs usually as the result of a suppurative process extending from the middle ear and mastoid cells through the inner plate of the temporal bone. Its most frequent seat of occurrence in acute cases is the dura covering or adjacent to one or more portions of the lateral or sigmoid sinuses. Its second site in order of frequency is the dura covering the lateral surface and floor of the middle fossa; and in this region it is also the result of an acute process. The third common site, where the lesion occurs as a result of a chronic middle-ear suppuration, is in the region of the tegmen tympani.

Symptomatology.—The one prominent symptom common to all cases is a severe headache, corresponding to the inflamed dura. This head pain is nearly always aggravated by exercise. There is extreme irritability of temper, and if a larger area of dura is involved, the patient exhibits twitching, drowsiness at times, intolerance of light, and in the severe type of cases, intermittent delirium, especially at night. Combined with these are the symptoms usually associated with the severe types of mastoiditis.

Diagnosis.—It is not often that the diagnosis is made prior to a mastoid operation, as, in the vast majority of cases in which a pachymeningitis exists, the lesion is not discovered until the operation on the mastoid bone

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

8. Ztschr. f. Ohrenh., 1906, No. 50, p. 261.

9. Infectious Diseases of Brain and Spinal Cord.

10. Beitr. z. klin. Chir., xlviii.

11. Verhandl. d. deutsch. Gesellsch. f. Chir., xxxiv.

12. Univ. Penn. Med. Bull., 1906.

13. Traité de chirurgie cérébrale.

14. Zentralbl. f. Chir., 1906, No. 47, p. 1256.

15. Univ. Pennsylvania Bull., 1906.

16. Surg. Gynec. and Obst., 1905, No. 5.

is done. When it is suspected, it is because of the character of the pain, which is more severe and lasting than in uncomplicated cases of mastoid disease. When the disease is situated in the region of the tegmen, the pain is of a severer grade, lasting longer, radiating over a larger area, and the photophobia is more pronounced.

Treatment.—Every vestige of diseased bone adjacent to the inflammatory zone should be removed. If the bone is covered by firm granulations these should not be molested, as this is an attempt of nature to combat the disease. If, however, the area is covered with soft broken-down granulations, they should be curetted away and the parts rendered sterile by flushing with a warm saline solution, followed by absolute alcohol with a final saline flushing following the alcohol. A dressing of plain sterile gauze moistened in a normal saline solution is placed loosely against the exposed dural area. In cases where a large dural space is exposed, the dressings should be changed frequently, as a wet dressing in contact with the dura is more comfortable than a dry one.

EPIDURAL ABSCESS

Cause and Site.—This is a very common complication of mastoid disease. Its most frequent site is over and around the sigmoid sinus. When in this situation it is referred to as a peri-sinus abscess. Its site of next frequency is the region of the tegmen antri, and the abscess may extend all along the floor of the middle fossa. At times it is very extensive, extending posteriorly over a large area of the cerebellum.

Symptomatology.—In addition to the ordinary symptoms of involvement of the mastoid bone, the pain present is of a severer type, throbbing in character, and more persistent. The temperature during the disease is higher, there is more frequent vomiting, and all the symptoms usually present in a simple mastoid are aggravated to a marked degree. There is extreme restlessness at night, inability to sleep for any length of time on account of localized head pain, drowsiness, and in advanced cases, stupor. In many of the cases well-developed chills are present, with considerable fluctuation of temperature.

Diagnosis.—This is usually made at the time of the mastoid operation, although in well-developed cases it may be determined prior to the operation by the marked severity of the symptoms, the excessive degree of tenderness on pressure, and percussion over the accumulation of pus. A physical sign which aids in diagnosis, especially in cases of long standing, is the presence of swelling and edema of the soft parts externally, corresponding to the pus areas within. A differential blood count is of value, as here the proportion of polynuclear cells is higher than in an uncomplicated mastoiditis.

Treatment.—There can be but one successful method of treatment of this condition, and that is to remove all diseased bone adjacent to it; no matter how extensive it is or where it leads to, it should be removed, and the field of operation treated in the manner described under pachymeningitis.

THROMBOSIS OF THE LATERAL OR SIGMOID SINUS

Cause and Site.—This complication is met by the otologist very frequently. It may be complete or partial, of the whole or of any part of the sinus or its adjacent blood currents, and may result from an acute or chronic suppuration of the middle ear. It is however, more frequently associated with a chronic purulent condition, or an exacerbation of such a condition. When compli-

cating an acute middle-ear involvement, the infection is usually of a virulent type.

In reviewing the symptomatology, I shall follow my usual custom and speak of it from a clinical standpoint, under three separate headings. While not all cases can be definitely grouped under this classification, the majority can, and it is for this reason that I make the following clinical distinction. First, the typical cases; second, the atypical, and third, the cases in which the bulb and sinus are primarily involved without macroscopic disease of the mastoid process.

Symptomatology—Typical Case.—Temperature is one of the most important symptoms, and ranges from normal to 106 and higher, quickly followed by a remission to near the normal point or below. There may be one rise or several during twenty-four hours, depending upon the rapidity and the quantity with which the infection enters the general circulation. If the patient be kept under observation for several days, these exacerbations of temperature become more frequent and the variations greater.

Chills are present in about 50 per cent. of the cases, preceding the rise in temperature, and in well-advanced cases followed by profuse sweating. Many patients exhibit no chill, and only complain of a chilly sensation, and this is frequently overlooked. In a postoperative mastoid case, with frequent variations of temperature, these chilly sensations are as important as though a distinct rigor were present.

When the temperature is high, there is a corresponding rapidity of the pulse-rate. Respiration remains unchanged except during the hyperpyrexia. Pain is more pronounced than when an uncomplicated mastoiditis exists and is referred to the occipital region. Where the internal jugular vein becomes infected early, there is pain along its course, due in all probability to an infected chain of lymph glands in that region.

Nausea and vomiting are usually present to a moderate degree during the stage of development, becoming more pronounced as the infection progresses.

Intraocular symptoms are present in about one-third of the cases. The earlier the patient is seen and operated on, the less frequently are they observed. If the infection has extended to the cavernous sinus, there is swelling and fulness of the eye and lid of the affected side.

Cerebration is normal except in advanced cases.

Among general symptoms are loss of appetite; dry, coated tongue, and dryness and yellowish tinge of skin, indicative of pronounced sepsis.

Physical Signs.—Edema is occasionally present over the mastoid region to a greater extent than in a simple uncomplicated bone involvement. In advanced cases there is marked stiffening of the muscles of the neck on the affected side, and the patient's head is drawn well over to the shoulder of this side. Combined with this, there is a well-marked rigidity of the muscles in this region. In a few cases where the vein is involved, it gives the impression of a hard cord-like swelling in the neck, but this physical sign is by no means so frequent as many of the text-books on this subject would have us believe.

Symptomatology—Atypical Case.—Atypical cases usually develop a few days after the mastoid operation. There is loss of appetite; the patient becomes restless and irritable; the tongue is dry with a thick coating in the center. There is a gradual increase in the pulse-rate from 100 to 130 per minute, and a slow but gradual rise in the temperature to 103 F, or 105 F, or higher;

and this may remain so for several days. In many cases it will not vary a degree in twenty-four to forty-eight hours; in other cases there is a little more variation, but there are no sudden fluctuations. The patients complain of nausea and headache and are unable to sleep for any length of time. There is no chill or chilly sensation observed. There is marked irritability of temper; this is followed by drowsiness with sweating. The skin at first is dry, and later becomes yellow.

Physical Signs.—One of the signs which I consider of great value is, that the mastoid wound in the early stages of the disease is healthy and covered with granulations, except over the bone of the inner table which forms the sigmoid groove. This bony area is darker in color than it was at the time of the operation, and there are no granulations over any part of it. All the rest of the wound cavity shows evidence of healing. Should the infection progress, an entirely different condition will be found at the end of two or three days. The parts that before looked healthy will now look pale, and the granulations will have begun to soften and break down, while the bone overlying the sinus will be still dark in color, with no evidence of repair. If the sinus is exposed at the time of operation, the overlying dura appears grayish; there is an absence of luster, and often it is covered with a plastic exudate which is compressible if pressure is applied over it.

PRIMARY BULB THROMBOSIS

This occurs usually in young children as a consequence of an acute purulent otitis, the result of a direct infection from the tympanic cavity through the floor of the tympanum to the jugular bulb. This explanation is logical if the fact is borne in mind that in a certain percentage of skulls of young children and adults, an unusually high dome is found encroaching on the middle-ear cavity; a dehiscence also not infrequently exists in this region. Under these conditions it can easily be comprehended how an active purulent infection of the middle-ear cavity can involve the blood current—finding its way through the small veins and lymphatics or by absorption through the parchment-like bone in this region, without first pursuing its usual course through the cellular structure of the mastoid bone.

Symptomatology.—Temperature rises rapidly from normal or thereabouts to 105 F or 106 F or higher, with a sudden remission to near the normal or below. It may remain below for several hours and then quickly rise to the high level, with as rapid a decline as before.

Pulse ranges from 110 to 160 or higher per minute, depending on the age of the patient.

Chills are not observed. Prior to the rise in temperature many of the patients have cold hands and feet; they are fretful, and extremely irritable and drowsy. The eye signs are negative. If this temperature range be permitted to go on for several days, these patients exhibit all the signs of a general sepsis. There is a phase of sinus disease in children and adults which should be carefully noted because it is so misleading and so frequently causes the postponement of an absolutely necessary operation. I refer to that period of the disease which is seen in a majority of cases during the temperature remissions, for at this stage I have often been misled by the patient's apparent improvement. During my earlier years of observation it was most difficult, and at times impossible to understand why, if the patient was suffering from such a serious condition, he should feel so well between the rises of temperature. A closer study

of the cases, however, taught me that the rise in temperature could be explained on the theory that some of the infective material from the sinus was being thrown into the general circulation by way of the internal jugular vein, causing a general systemic poisoning. When this occurred, the chill, temperature, nausea, vomiting and drowsiness were observed; but as soon as the major portion of the toxins had been eliminated the patients felt better; there was a subsidence of all former symptoms until sufficient toxic material from the seat of the thrombus was again disseminated throughout the general circulation. If such a case be allowed to progress without surgical interference these symptoms recur with greater and greater frequency until operative measures would be useless to save life.

DIAGNOSIS

In typical cases it is based on the temperature changes, with the chill or chilly sensation preceding the rise in temperature following the mastoid operation. In many of the cases most of the symptoms given under Symptomatology are present, and when these occur a diagnosis is comparatively easy. In cases in which the sinus is operated on at the time the mastoid operation is done, and there are no previous symptoms as a guide, the diagnosis is based largely on physical signs; the dura is lusterless, thicker than usual and of a grayish or yellowish color, with frequently an adherent plastic exudate. The dura itself looks flat; does not present an oval appearance; is easily compressible, and does not fill quickly when pressure is removed. The mere presence of an epidural and a perisinus abscess is by no means an indication for exploring this channel, and the same is true if the sinus wall is covered with granulations, for this is nature's effort to protect the structures beneath. Bacteriologic examinations of the discharge from the ear are of value, as certain forms of infection are prone to greater activity and involve adjacent blood currents more rapidly than others. A further aid in diagnosis is the differential blood count, of which the important part to us is the polynuclear percentage, which, if it be 80 or over, is indicative of pus-absorption, while the leucocyte count merely gives information as to the patient's resistance to the disease. A still further aid can be obtained from the blood by cultures; the knowledge thus gained is very valuable, and at the same time positive evidence can be gained of the nature of the blood constituents. These blood cultures will, I believe, supplant in real value all other forms of examination as an aid in diagnosis.

In atypical cases the diagnosis is also made from the temperature changes, the patient's condition and the physical signs presenting. These cases develop several days after the mastoid has been operated on, and can best be described by briefly outlining a case during its development and course. Take a postoperative case following its usual course for several days, when anywhere from the fourth to the 10th day the patient is restless, his appetite poor, his tongue slightly coated, his pulse 90 to 100, his temperature 99.6 to 100.6 F. The next day the temperature is from one to two degrees higher, with no marked remissions; restlessness is more pronounced; the patient is irritable, and has anorexia; his tongue is dry at the edges, and the coating more pronounced than on the previous day; the pulse is 110 to 120 per minute; and the patient has general headache, and nausea, and is unable to sleep quietly. The day following, the temperature is 104 or higher, and the

pulse 120 or 140 per minute, showing less tension. The headache is more pronounced, and the restlessness, irritability and sleeplessness are distinct symptoms. The tongue becomes brown and dry and has a glazed center. If allowed to progress for another day the temperature is 105° F or higher, pulse 140 to 150 per minute and weaker. The patient is drowsy and apathetic; as the infection progresses the temperature is practically stationary. The pulse becomes weaker, and the evidences of a general pyemia are present. A physical sign which is of distinct value from a diagnostic standpoint is the condition of the inner table covering the thrombotic area. Instead of being white and of a normal color as when the mastoid was operated on, it will be found dark. This is a distinct evidence of disease beneath, the change in color being due to an obstructed venous circulation throughout the bone at this point. If the sinus was exposed at the time of the primary operation, the dura covering it will be found to have undergone a marked pathologic change. It now presents a grayish or yellowish appearance, is flat and covered with fibrinous exudate.

PRIMARY BULB

Diagnosis.—Here the diagnosis is made from the rapid temperature changes closely following an acute purulent involvement of the middle ear. The blood examinations are additional aids, and all other diseases should be ruled out by a process of elimination.

Treatment.—The time allotted me forbids any extensive description of technic so I shall speak only of the most important points, omitting all minor details. First, a complete and thorough exposure of the sinus from a point above the knee down to just above the bulb is essential. The treatment of the first and second class differs but little. Too much bone should not be removed posteriorly so as to expose a large dural area over the cerebellum, as a hernia is liable to occur in this region if this be done. The dura forming the anterior wall of the sinus should be incised freely, first with a scalpel to make an opening of sufficient size to allow of the introduction of a blunt pair of scissors. On exposure of the clot it should be removed; if no hemorrhage be obtained from the proximal end of the sinus, a further exposure toward the torcular should be made, and this should be continued until a free hemorrhage is established and it is certain that all infective material in this region has been removed. When this is accomplished the blood should be allowed to flow for a second or two so as to wash out any clot or septic material that may be present further back in the vessel. The blood flow is then controlled by placing a piece of gauze firmly against the opening in the sinus. The lower portion of the sinus is treated in the same manner. If there is a free hemorrhage below, and the clot shows no evidence of having broken down, and pus is absent, the operation can be ended here and gauze packed into the lumen of the sinus. But if, on exposing the interior of the sinus, pus or a broken-down or disintegrated clot be found, or the operator is unable by gentle manipulation to restore the return circulation in the bulb region, he should without delay—and before any attempt has been made to remove the septic material in the sinus—expose, ligate and resect the internal jugular vein from the clavicle to its exit from the skull, together with any of its tributaries that are found involved, as well as infected glands along its course, and then proceed to evacuate the contents of the sinus above. In cases in which operation is done before marked systemic symptoms have de-

veloped, and before the coats of the vein below have become infected with the micro-organism of the disease, and where a return flow of blood in the bulb region is not obtained, it is not always wise to remove the vein at this time, for experience teaches that a certain number of these patients recover without further operative procedure. Should they, however, show evidence that a septic process is still continuing, the vein should be removed without delay, provided that the patient's condition will admit of it. In cases in which a return flow of blood has been established at the bulb, one is never sure from what source the current has its origin—whether from the internal jugular vein, or from the inferior petrosal sinus, or both. In a number of cases in which the vein has been removed as a primary step in the operation, before the sinus has been exposed above, we find on opening the sinus that the return flow of blood from the bulb region is quite as free as we would expect if we had the internal jugular vein intact and performing its usual function, the blood coming no doubt from the inferior petrosal sinus. I have seen this demonstrated several times when the internal jugular vein was ligated and resected as a preliminary to exploring the sinus above.

THROMBOSIS OF THE INTERNAL JUGULAR VEIN

Cause.—In otitic disease this thrombosis is always secondary to bulb or sinus involvement.

Symptomatology.—Occurring as it does secondary to sinus involvement, thrombosis of the internal jugular vein usually presents the symptoms associated with this condition. In a number of cases there is also pain referred along the course of the vein in the neck and radiating down over the chest of the affected side.

Physical Signs.—In some cases there is marked tenderness on pressure along the course of the vein and for some distance anterior and posterior to it, with perceptible fulness and swelling of the neck. In a few cases a hard cordlike mass can be felt, which, however, I have seen only once, and that was in a case of long-standing disease of the vein, with marked hypertrophy of the muscular coat.

Diagnosis.—This is usually made from the symptoms associated with disease of the sinus or bulb above and the physical signs, together with blood examinations and culture.

Treatment.—This consists of ligation, excision and removal, with any tributaries, and infected glands. The treatment of the resultant wound is optional either by the open method or suturing at the time of operation and inserting a large cigarette drain. I prefer the latter method, with moist saline dressings changed every twenty-four hours.

PRIMARY THROMBOSIS OF BULB

As nearly all these cases occur in young children, and are produced by a primary infection of the blood current, the patients should be operated on early. When this is done the percentage of recoveries is in favor of removing the clot without ligating the vein, as they do not bear prolonged operations well. Later, if it becomes necessary to resect the vein, it can be done at a second sitting, without the added risk of a long operation. Not infrequently in this disease an exception must be taken to this conservative plan of treatment when, on opening the sinus, pus or a broken-down clot is found. When this condition confronts the operator, whether there be a free hemorrhage at the bulb or not, I believe that it is imperative for the safety of the patient that the vein

be removed at once. Occasionally, a case of postoperative mastoid exhibiting all the typical signs of a sinus infection, is met. When, however, the sinus is explored, no clot or foci can be demonstrated; but as soon as the sinus is opened and a free hemorrhage occurs, the patient improves and recovery follows. I believe the explanation of this to be that there is a small parietal or central thrombus present, and the sudden gush of blood outward when the sinus is opened carries the clot with it, thereby relieving the vessel of any further infection. Before leaving this subject I wish to make a plea for early operation in these cases of infected sinus disease. Experience has taught me that the so-called elective time is during the temperature remissions, as the patients bear the shock of the operation better and react more favorably than if it is done when the temperature is at its height.

BRAIN ABSCESS

Cause.—When we are confronted with the fact that about 37 per cent. of all cases of brain abscesses are the result of an extension of an infective process from the middle ear, it is not difficult to understand how important it is to treat this local condition in order that adjacent structures may not become involved.

This otitic complication is very often difficult of recognition, because of the number of symptoms that may be present, some of which may be due to other intracranial conditions. For this reason a positive diagnosis prior to operation is impossible in many cases.

Symptoms.—In abscess of the middle and anterior fossa, the symptoms present in cases seen by me are as follows: A purulent discharge or the history of such, from the ear of the affected side; persistent and localized pain over the suspected area; tenderness on percussion; fretfulness; irritability; moaning, gritting of teeth and crying out in sleep; nausea and vomiting; insomnia at first, later drowsiness; photophobia; aphasia; depending on the location of the abscess; and vertigo in the majority of cases. Intraocular changes, when present, are valuable aids, but not positive. Nerve manifestations are of but little value in the majority of cases. The pulse, in cases uncomplicated by other intracranial affections, is slow, from 45 to 65; when complicated, it is much higher. The temperature ranges from subnormal to a little over 100; if coincident with other lesions it is much higher.

Diagnosis.—The diagnosis is made from several or all of the symptoms given. A differential blood count is of aid, and if the abscess be of the acute type, before a limiting membrane has had sufficient time to become organized, the absorption will be greater, and with this there will be a higher polynuclear percentage, ranging from 85 per cent. to 95 per cent. If the abscess be of the chronic variety, from an old middle-ear infection and of long standing, the percentage will be much lower, because of the small amount of systemic absorption taking place, and because the abscess walls are formed by a more or less dense and limiting membrane. A radiograph of the cranial contents may be of aid; in one case it has been of value to me.

CEREBELLAR ABSCESS

Cause.—A collection of pus in the cerebellum may remain unrecognized for years, and if the accumulation be small in amount, with well-defined walls, give but little trouble; but if situated deeply, the lack of coordination on the part of the patient leads us to suspect a lesion of the posterior fossa. An abscess of recent origin

may present many of the same symptoms as when located in other parts of the brain.

Treatment.—When the various regions of the brain are being explored for an abscess, the skull should be entered at a point corresponding as nearly as possible to the floor of the lobe about to be exposed, in order that free drainage may be obtained. There should be a sufficient opening of both the bone and the dura to enable the operator to examine the region in every direction. Many times the otologist is at fault here and subject to just criticism from the general surgeon, because he makes too small an opening in the skull, and produces more injury to the dura and cerebral substance than he would if he had a larger space to work in. After incision of the dura in a horizontal plane, it has been my custom to introduce silk sutures through the flaps, as in this way they can be used as retractors to draw the edges apart, while they do not injure the dura; should exploration prove negative, they can then be used to close the opening. In exploring the cerebral substance for a pus collection, experience has led me to rely on the use of a long narrow scalpel, and if pus be encountered, to withdraw the knife and introduce into the opening a pair of closed forceps, enlarging the opening by separating the handles. The cavity may be cleaned by one or two methods, depending on whether one is dealing with a pus accumulation of a recent or remote origin. If the abscess be of the acute type, without the presence of an organized tissue wall, the less manipulation used the better. It can be cleansed by gentle mopping with strips of sterile gauze, and drained by placing a small wick of sterile gauze down to the bottom of the cavity, allowing the brain substance to collapse around it; for it is a clinical fact that brain abscesses of the acute form discharge but little after evacuation and do not need firm packing. If the abscess be a chronic one, and if, in addition to the pus there be broken-down and disintegrated brain substance, it can best be removed by irrigation with a warm normal saline solution. The cavity should be mopped out with sterile gauze. In this type of abscess I have been accustomed to use for drainage purposes, a moistened wick of gauze rolled in equal parts of boric acid and iodoform; packing the whole abscess cavity quite firmly so as to promote repair; for with its limiting membrane or connective tissue wall, it does not collapse around a wick as does the acute type of abscess. A serviceable drain also in this latter type of cases, is decalcified turkey-bone. Before inserting the drain in any of these abscess cavities, the utmost care should be exercised in searching for multiple abscesses, as they occur frequently and are often overlooked, to be found at a subsequent operation or on autopsy.

MENINGITIS SEROSA, OR SEROUS MENINGITIS

Cause.—This form of meningitis occurs not infrequently, as a complication of extensive mastoid or sinus involvement.

Symptoms.—Aside from the symptoms of the primary disease the one most prominent is pain referred to the basilar region, vertex of the skull and the cervical region of the spine. There is marked stiffness and rigidity of the muscles of the neck, and exquisite tenderness on pressure over the muscles, caused in all probability by the inflammatory process extending along the sheath of the spinal nerves from their exit at the skull. In a fair proportion of cases a chill is present. In well-developed cases the muscular tissue itself is swollen and tender to the touch. The temperature ranges from 99 F. to 103

F., always higher at night than in the morning. The pulse rate is from 85 to 120. The respirations are unchanged at first, but later when pressure is pronounced they increase to 30 and 40 per minute. There is well-marked restlessness, moaning and irritability and hypersensitiveness during the early stage. Later this is succeeded by drowsiness; delirium occurs when the disease is well developed, and nausea and vomiting are present to a marked degree—depending on the amount of pressure exerted by the fluid.

Among the eye symptoms is congestion of disc. Photophobia is always present and nystagmus is frequent. A few patients exhibit difficulty in swallowing. The reflexes remain unchanged except in cases well advanced in the disease.

Diagnosis.—The diagnosis is made from the symptoms enumerated. An additional aid is lumbar puncture. When this is done the spinal fluid passes out through the trocar with distinct evidence of pressure and examinations and cultures of it demonstrate whether the case belongs to a serous or purulent type of the disease. If the fluid is clear and free from micro-organisms, then it is only the serous form. Differential blood count is of value.

Treatment.—Ice should be applied continuously to the head and neck; there should be free purgation; as little of sedatives as possible should be given to allay pain; the surroundings should be absolutely quiet; feedings should be frequent. Lumbar puncture is, I believe, of distinct therapeutic value, and large quantities of fluid can be drawn off with most beneficial results. This procedure can be repeated several times should it become necessary. In nearly every case the acute symptoms subside following the withdrawal of the fluid. Under this treatment a majority of the patients usually recover.

PURULENT LEPTOMENINGITIS

Cause.—This form of meningeal involvement is frequently encountered as a direct extension from the middle ear through the tegmen tympani, from the mastoid sinus, pachymeningitis, encephalitis and brain abscess.

Symptoms.—Many of the symptoms as exhibited in the serous type of meningitis are present during the early stage. With these we have the presence or history of an otorrhea. The restlessness, irritability and general discomfort are more pronounced. Vomiting is more or less constant, and is independent of the taking of liquids or food. Vertigo is nearly always present. Pain is severe and constant, referred at first to the frontal region or vertex; later along the cervical portion of the spinal column and radiating outward to the muscles. There is well-marked tenderness on pressure in the posterior cervical triangle, and the soft tissue is at times swollen. Temperature is uniformly high, from 103.5 to 105.5, with no marked variations except in cases complicated by other lesions. Rigors precede the temperature rise, and occur from time to time during the course of the disease. There is marked muscular prostration with areas of anesthesia of various portions of the body. Reflexes are but slight, and later absent. Thirst is intense. A number of patients exhibit herpes of the lips, with a rash over the chin, neck and chest. Eyesight is defective in the majority of cases. Photophobia is marked; later nystagmus occurs. Examination of the eyes shows discs hyperemic, with a beginning distention of the veins; later a well-marked optic neuritis is seen. The respirations are but little increased at first; later they become rapid, loud and stertorous; then

slower and intermittent. There is complete absence of cerebation and death in coma.

Diagnosis.—This is made from the symptoms present aided by lumbar puncture, and here the fluid drawn is turbid, flaky, and contains large numbers of diplococci or meningococci.

Treatment.—Nearly all these cases terminate fatally. The application of ice locally seems to make the patient more comfortable. Lumbar puncture relieves, for a time, the pressure symptoms. The rational treatment would seem to be to expose and drain the infected area, and this should be done early, before a general infection of the meningeal structures has taken place, if any measure of success is to be obtained. I have had only one successful case, and here the drainage was done early at the time of the mastoid operation. It is interesting to note in this connection, the communication and suggestion advanced by Dr. Cushing, namely, that if repeated doses of urotropin be given to a patient suffering from purulent meningitis, the micro-organisms are rendered sterile. If this be proved, it would be an easy matter to introduce a solution of this drug through the trocar into the spinal canal, after drawing off the amount of fluid desired, and before the trocar has been withdrawn. I believe, however, that the future successful treatment lies in an early operation.

ENCEPHALITIS

Cause.—I shall speak only of that form of encephalitis which the otologist meets following the infection of one or more of the sinuses, or after evacuation of a pus collection in the brain—the latter being the more frequent of the two. In this connection its causation is by an extension of the infection from the sinus or abscess cavity through the veins or lymphatics to the cerebral or cerebellar substance itself.

Symptoms.—Occurring as encephalitis does after an operation in this region, the first evidence is given by rigors with vomiting, and closely following this is a sharp and sudden rise of temperature from near the normal point to 104 or 105 or even 106 F., with a correspondingly rapid pulse rate. Pain is severe, and referred to the exact region of the infection. Later, all the symptoms referable to well-advanced cases of brain abscess may be present.

Diagnosis.—Inspection of the wound is usually sufficient, as here will be found necrotic and broken-down tissue. At first it is odorless, but later when pus forms the odor is pronounced.

Treatment.—The protruding mass should be incised with the scissors; an effort should be made to remove all the disintegrated area; and the cavity should be cauterized and filled with powdered boric acid. The tissue is prone to bulge, owing to a further disintegration, and quantities of it have to be removed at each dressing. Drainage seems of but little use in this connection, as the quantity of the bulging mass forces the drain out. A few patients recover with this treatment, but the prognosis in the majority is bad.

SUBDURAL ABSCESS

Cause and Site.—The two usual sites for the occurrence of subdural abscess are beneath the dura, corresponding to the tegmen antri and the tegmen tympani. In the former locality it is caused by an extension of an infective process from the mastoid antrum, through the superior portion of the inner plate. In the second situation it occurs from an infective middle-ear process

through the tegmen tympani. In either case there is a localized pachymeningitis at the point of perforation, and later a localized accumulation of pus beneath the dura, between it and the brain substance covered by the pia mater. If discovered and evacuated early, it does no harm to the brain tissue, except by pressure while *in situ*.

Symptoms.—These are much the same as in a well-developed pachymeningitis or an extensive epidural abscess. If the pus accumulation be large, additional evidence of localized intracranial pressure is exhibited.

Diagnosis.—This is seldom made prior to operation. The dura, on exposure at one of the points mentioned, will be found thickened, darker in color and bulging into the opening.

Treatment.—Incision of the dura evacuation of the pus and drainage is all that is required. Nearly all the cases recover if operated on early, before complications occur.

THROMBOSIS OF THE PETROSAL SINUS

Cause.—This usually occurs by an extension of a thrombotic area from some portion of the sigmoid sinus or jugular bulb. The inferior petrosal is the one found involved most frequently, and its source of infection is from the jugular bulb into which it empties anteriorly. The superior petrosal receives its infection from the descending limb of the sigmoid sinus a short distance below the bend or knee. Either one or both of these blood channels conveys the infection to the cavernous sinus, from which they carry the blood direct to the sigmoid and bulb.

Symptoms.—These are very similar to those found in the phlebitis of the sigmoid and jugular bulb.

Diagnosis.—This can only be made a certainty by exploration after operation on the sigmoid, bulb and vein, for here, if the evidence of pyemic infection persists as shown by the symptoms, the presumption is that one or both of these channels is involved. I believe that they are infected far more frequently than is supposed, for many cases show no abatement of the symptoms after obliteration of sinus and bulb and removal of vein. This continuance of symptoms is, I believe, due to an infective process in these sinuses.

Treatment.—The only rational treatment is a free exposure of the thrombotic area; evacuation of the sinus contents and packing, so as to obliterate the blood current. It is my belief that many times when a complete operation has been done on the sigmoid bulb and vein, an encephalitis of the cerebellum subsequently develops as the result of an infective process left in these sinuses.

THROMBOSIS OF THE CAVERNOUS SINUS

Cause.—This is seldom, if ever, primary, and very frequently is bilateral, owing to an extension through the circular sinus.

Symptoms.—Occurring as this thrombosis does secondary to thrombosis in other blood currents, we may have many or all of the symptoms that are present in these cases. Pain is always pronounced. The condition is one accompanied by basilar meningitis and when present is associated with the symptoms produced by this lesion, besides the others.

Physical Signs.—These are edema of eyelids and root of nose and face on affected side, ptosis and strabismus. Vision is defective; exophthalmos, retinal hemorrhages and choked disc are present. Pharyngeal swelling, as well as that of the tonsils and larynx, is frequently seen.

Diagnosis.—This is made from the symptoms and physical signs presenting.

Treatment.—I do not know of any treatment that is successful.

A few cases have been reported as recovering with complete loss of vision. Day¹ reports such a case. The duration of the disease is usually a few days; occasionally a case may go on for weeks or months.

I have purposely omitted thrombosis of the vertebral, mastoid, anterior and posterior condyloid veins, as well as the marginal sinus, as they seldom, if ever, occur primarily, save possibly thrombosis of the mastoid vein; and when a primary infection of this does occur, the symptoms resulting from it are immediately overshadowed by those quickly produced from infection of the sigmoid.

I urge most strongly the importance of teaching the undergraduate in our medical colleges more about aural disease, and particularly the gravity of a running ear, so that when this class of case presents itself to him for advice and treatment, appropriate measures may be instituted for its relief. It is mainly in this way that we may hope in the future to diminish and limit the intracranial complications of otitic disease.

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INTRACRANIAL LESIONS CONSECUTIVE TO NASAL AND ACCESSORY SINUS INFECTIONS*

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My friend, Dr. John McCoy, and I have made a search of the literature and find that but few rhinologists have had any experience with intracranial complications. No rhinologist has reported anywhere near the number of cases depending on nasal infections as compared with the number met in an otologic practice. It is only within the past few years, during the development of the modern radical surgery of diseases of the accessory sinuses, that the cranial complications have at all come to the notice of the rhinologist. Previous to this time such intracranial lesions as were diagnosed fell into the hands of the general surgeon for operative treatment.

That infection occasionally extends from the nares to the cranial contents is sadly brought to our notice. That these complications occur as frequently as they do in connection with suppurative lesions of the tympanum, mastoid and internal ear, present information would seem to deny. A vertical anteroposterior section of the head just to the left of the median line shows the wide area of the cranium exposed to possible infections as a result of suppurative inflammation of the frontal, ethmoid and sphenoid sinuses. The antra nowhere come in direct connection with the floor of the cranium, yet it is possible for an infection in the antrum to reach the cranial contents indirectly through either the orbit or the ethmoid.

The frontal sinus may be absent, or it may extend in a vertical direction three inches above the orbital arch. Again, there may be a horizontal prolongation partially or completely over the roof of the orbit, so that in the latter case a very large part of the floor of the anterior

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fossa of the cranium may be exposed to infection extending from a diseased frontal sinus. Let me call attention to the close juxtaposition along the floor of the cranium of the two areas occupied, respectively, by the right and left ethmoidal and sphenoidal sinuses. The importance of this can be appreciated only by the surgeon at the bedside, who, having reason to suspect an intracranial lesion in cases of bilateral sinusitis, is called on to decide through which side the infection entered.

Infections of the nares may extend into and involve the cranial structures in three ways:

1. Through the blood vessels.

2. Through the lymphatics.

3. By necrosis and perforation of the bony walls of the frontal, ethmoid or sphenoid sinuses.

1. While the bulk of the venous blood from the nose and accessory sinuses returns to the heart through the external veins, there is a small amount that reaches the superior longitudinal sinus through the foramen cecum, thus making it possible for infective sinus thrombosis or general infection of the system to occur.

2. The general lymphatic drainage follows the same course as the venous. The perineural lymph spaces around the branches of the olfactory nerve are so arranged that it is easier to understand how infective meningitis may arise by infection along this route. Evidence is yearly increasing that leads investigators to believe that the micro-organisms inducing meningitis gain access to the cranial cavity in the large majority of cases through the ear, nares or nasopharynx. The exact paths, however, by which they traverse the latter two regions remain still to be determined.

3. Necrosis of the walls of the sinuses and direct infection of the dura. In discussing this subject I shall consider the frontal, ethmoid and sphenoid sinuses individually.

FRONTAL SINUS

It has fallen to my lot to see a great many cases of frontal sinusitis, both acute and chronic. Having operated in more than two hundred cases in such a way that every part of the cavity was explored, I have records of but three cases in which there was a necrosis of the posterior wall. In two of them there was a history of syphilis, and from the extensive destruction of bone I can not help thinking that it was a very important factor. In the third case there had been a previous operation at which also I am told there was a small perforation of the posterior wall. In most of the cases of chronic frontal sinusitis which I have seen no matter how extensive the change in the mucosa, the bone had been only slightly altered from the normal. Occasionally I have observed an otitis of a proliferative type resulting in the thickening of the bone in ridges.

Necrosis with perforation of the inferior or orbital wall of the frontal sinus is quite common. It is most commonly associated with obstruction to the adequate drainage of pus through the nasofrontal canal. The perforation is more frequently nearer the nasal than the temporal portion of the upper lid. Structurally, portions of the inferior wall of the frontal sinus are thinner than the posterior and give way to the pressure. In cysts of the frontal sinus there may be extensive pressure and absorption of the wall. A few non-syphilitic cases have been reported in which the posterior wall of the frontal sinus has been perforated and, as complications, epidural abscesses, meningitis and brain abscesses have been found.

ETHMOID CELLS

There are three pathologic processes found in the ethmoid cells: suppuration, polyp-formation and cysts. In suppuration, when drainage through the normal openings into the nasal cavities is obstructed, necrosis and rupture may occur either through the superior wall, that is, the cribriform plate of the ethmoid, into the anterior fossa of the cranium or through the external or orbital wall into the cavity of the orbit. As a result of rupture into the cranial cavity, three processes have been observed: meningitis, epidural abscess and abscess of the brain. As a result of infection of the orbital contents there occurs an orbital cellulitis characterized by a marked edema of the upper and lower lids with exophthalmos. Secondary to the orbital cellulitis, and even possibly primary in the case of the rupture of the posterior ethmoid cells, thrombosis of the orbital veins may occur, which, traveling backward, involves the cavernous sinus on the same side. Involvement of the cavernous sinus is invariably associated with marked exophthalmos and edema of the lids. Owing to the communication of the cavernous sinus on one side with that of the opposite side through the circular sinus, it occasionally happens that a sinus thrombosis arising from infection of one orbit and cavernous sinus extends through the circular sinus to the opposite cavernous sinus resulting in exophthalmos of the opposite eye.

POLYP-FORMATION

Polyp-formation within the ethmoid cells causes extreme distention of the cells, rupture of the bony walls and occasionally results in absorption of the superior wall or orbital wall of the ethmoid. As polyp-formation is usually accompanied by suppuration, the subsequent history of such perforation either into the cranial cavity or orbit as a result of a new and added infection to that which is already present produces the same pathologic conditions as described above in suppuration. Cystic formation within the ethmoid cells results in varying amounts of distention of the cells with absorption by pressure of the bony walls in various directions, upward through the cribriform plate or externally toward the orbit. As the contents of these cysts are usually sterile, the symptoms depend entirely on pressure and displacements produced by the mass. It is quite common for these cysts to absorb the lacrimal bone and displace the contents of the orbit. In such cases a tumor may be seen and felt near or slightly above the inner canthus of the eye, displacing the globe externally and often downward. If the cyst projects through the posterior ethmoid cells into the rear of the orbit, protrusion of the eye or exophthalmos may result. There is seldom in cystic disease any edema of the eyelids as in the acute inflammatory cases. The cyst may become infected, rupture and then suddenly the symptoms that were enumerated in acute suppuration may supervene.

SPHENOID SINUS

Two processes are found in this cavity, namely, suppuration and polyp-formation. As portions of the superior and outer wall of the sphenoid cavity are normally very thin usually, one can readily understand how obstruction to the outlet of a purulent secretion may cause rupture of the superior or outer wall. The conditions resulting from this rupture are meningitis, epidural abscess, brain abscess, sinus thrombosis, impairment of vision, even blindness and exophthalmos: The cavernous sinus passes along the lateral wall of the

sphenoid sinus and is the one usually to be involved in cases of sinus thrombosis. When the circular sinus is involved the clot usually extends quickly into the cavernous sinus, and both the right and left cavernous sinuses are secondarily involved. The relation of the sphenoid sinus to the orbit makes it possible for an orbital cellulitis to develop in connection with suppuration of the sphenoid sinus, giving rise to the same conditions as described in connection with the ethmoid cells. Of the three sinuses, the frontal, ethmoid and sphenoid, it has been my experience that intracranial complications are far more apt to result from disease of the ethmoid and sphenoid than of the frontal.

That the rhinologist is not entirely at fault in not being able to determine the source of infection in many cases with the present methods of examination is perfectly true. In the first place, the anterior fossa of the cranium and the cranial contents found therein are those first involved when the nares are the source of infection. In the cases of infection from the ear the cranial contents in the middle and posterior fossa are first involved. It is well known that far more severe and extensive lesions may be present in the anterior fossa without giving rise to sufficient symptoms to enable the physician to make a diagnosis than in the middle and posterior fossa of the cranium. The rhinologist again meets difficulties in his examination of the nose far greater than does the otologist in the aural examination.

Nearly every patient ignores a moderate amount of discharge from the nares, considering it a type of catarrh which is common to every one. Consequently inflammatory lesions of the accessory sinuses, accompanied by a moderate discharge but unaccompanied by pain, are frequently unheeded by the patient. On the other hand, a discharge from the auditory canal is cause for concern and the seeking of relief. Nasal examination of a patient in whom intracranial lesions are suspected is frequently most unsatisfactory to the examiner and the family physician. For example, a patient in whom there are symptoms of meningitis in the early stages seeks an opinion as to whether the infection originated in the nasal cavities. Should the disease have extended through the veins or lymphatics it is scarcely likely that the nasal examination will detect the fact. If there is no sign of any secretion either in the nose or nasopharynx, one may never be sure that the sinuses are not involved. It is not at all uncommon to have the secretion from the ethmoid and sphenoid sinuses retained and only periodically discharged into the nares or nasopharynx. Without the evidence of secretion or any undue bulging of any group of cells, suppuration may be present without being detected by nasal examination. There are many factors which make it difficult to make a thorough nasal examination, such as the presence of a badly deflected septum, polypi, etc., which render a satisfactory examination unusually difficult. If, on the other hand, pus be seen in both nasal cavities, it is extremely difficult at a single examination to determine the extent of the involvement of the frontal, ethmoid and sphenoid cavities. It is still more difficult to determine in bilateral cases whether the infection has extended to the cranial contents from the cells, blood vessels or lymphatics of the right or left side. Since the cells meet so nearly in the median line and the physician is without the aid of a focal symptom as in one ear, little if any help is to be derived from a consideration of the subjective symptoms of the patient. Likewise, when but one side of the nasal chamber is involved in the sup-

purative process, great difficulty is experienced to determine whether the infection of the cranial contents arose from the frontal, ethmoid or sphenoid sinuses. With such difficulties, then, before the rhinologist, there should be no surprise that greater progress has not been made by him up to the present time.

The intracranial complications consecutive to nasal infection are meningitis, epidural abscess, sinus thrombosis and brain abscess.

MENINGITIS

It is unnecessary to enter into the details of the varieties and symptoms of meningitis. I shall merely remark that there is an acute type, not only involving the brain, but extending to the spinal cord, which is nearly always fatal. These cases are such as are most frequently seen by men devoting themselves to internal medicine. The source of infection is rarely if ever discovered. I have frequently been called in to decide whether the infection reached the meninges through the nares. Finding the patient in a mild delirium, the difficulties attending a thorough examination of the nares and accessory sinuses were much enhanced and my nasal examination has in nearly all cases been most unsatisfactory to me. I have never felt that I could conscientiously advise an operation in these acute cases, and death has usually occurred within two or three days.

There is another type of meningitis commonly described as serous meningitis in which the symptoms are less acute. In such cases, if disease of the accessory sinuses has been discovered and no other source of infection can be found I believe that we are justified in advising operative interference with the object of removing further infection, just as is done in cases of otitic meningitis.

A third class of meningitis, a more chronic or leptomeningitis, includes cases in which undoubted sinus disease has existed for some time. When all other source of infection has been excluded, I would again advise operation on the same ground as in the case of serous meningitis.

EPIDURAL ABSCESS

An epidural abscess is usually discovered at the time of operation for chronic sinusitis. It gives rise to vague symptoms which are frequently associated with sinus disease independent of epidural abscess. Headache is perhaps the most common symptom associated with this condition, but headache is so frequent in some of the severe types of sinus disease that from it alone we can not make a diagnosis of epidural abscess. In one patient on whom I operated there was a perforation, about 2 cm. in diameter, of the posterior wall of the right frontal sinus with a mass of granulations and pus between the posterior table and dura. The headache in this patient was so severe and at times the mentality was so confused that I told the surgeon and the family physician with whom I saw the case that I suspected an abscess of the brain. The patient was under observation for a period of about ten days before he would consent to operation. During the twenty-four hours before I operated the patient had three epileptiform seizures, one occurring during the night. There was no history of any such attacks previously. The patient was immediately sent to the hospital when the epidural abscess as above described was found, evacuated, and the patient made an excellent recovery.

SINUS THROMBOSIS

Thrombosis of the cavernous and circular sinuses gives rise to marked eye symptoms, such as edema of the lids and exophthalmos. These cases are more frequently referred to the ophthalmologist than to the rhinologist and surgeon.

BRAIN ABSCESS

The symptoms which lead one to suspect an abscess of the frontal lobe of the brain are persistent headache, slight elevation in the temperature, pulse slow, possibly choked disc and a blunted mental activity, as apparent delay in comprehending the questions asked and slow response. I believe that there is a field as yet insufficiently developed, namely, skiagraphy, by which we shall be able to determine abscesses of the brain. I do not pretend to say that every novice in the use of x-rays can make a plate which will show an abscess when it exists, but I do believe that, if an opportunity were given to a few of the experts in this line of work to skiagraph patients with brain abscess, the radiographer would soon learn the proper tube and time of exposure so that in many cases brain abscess might be accurately located by this method.

OPERATION

The operative technic which has been most satisfactory to me in exploring the sinuses has been what is known as the ethmoidal route. Skin incision begins beneath the eyebrow at the supraorbital notch, is carried in a curved direction downward midway between the inner canthus of the eye and the dorsum of the nose, and terminates at the middle portion of the nasal bone. The periosteum is peeled forward and backward, the capsule of the orbit freed from its attachment to the inner wall of the orbit. With chisel, mallet and rongeur forceps the nasal process of the superior maxilla is cut away, opening at once into the anterior group of ethmoid cells. By following this back through the whole of the ethmoid labyrinth and opening and enlarging the sphenoid sinus one traverses and explores very thoroughly the region from which the majority of infections reach the cranial and orbital cavities. The operation is a bloody one and should be performed only by one who has acquired the ability to reflect light into the cavity so as to see into the depths of the ethmoid and sphenoid regions. By this route one is working parallel with the floor of the cranium and is much less likely to perforate the floor than by the maxillary route which is advocated by some. This exposure enables one to remove the floor of the frontal sinus and by means of probe to explore the frontal sinus, and in that way to determine whether this cavity may be the seat of the trouble. If this is found to be the case, then a horizontal incision through the eyebrow with the elevation of the periosteum over the frontal bone and the removal of the entire anterior wall of the frontal sinus is indicated. As many of these patients are desperately ill, it is exceedingly important that whatever operative procedure is undertaken shall be terminated as quickly as possible. The shock of a short operation is much less than that of a long one. In my opinion, it has been advisable in these cases not to attempt to do the most thorough operation that one does in chronic suppurative sinusitis without cranial complications, but to exenterate all the cells as quickly as possible, introduce iodoform gauze drainage through the opening, and leave the wound

open without any attempt at suture. Should the patient recover from his acute symptoms, secondary suturing may be done in the course of a few days with but little more scar than if the wound had been closed at the time of operation.

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[THE DISCUSSION ON THE PAPERS OF DRs. HARTLEY, McKERNON AND COAKLEY WILL APPEAR NEXT WEEK WITH THE OTHER PAPER IN THE SYMPOSIUM ON CRANIAL TECHNIC, THAT OF DR. CUSHING.]

DIPHTHERIA "CARRIERS"

THEIR DISCOVERY AND CONTROL*

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PHILADELPHIA

The part played by the sanitarian in the control of contagious diseases is a most difficult one. On the one hand, the public resents any infringement on its personal liberty, and many physicians object, on scientific or other grounds, to whatever restrictive measures are enforced. On the other hand, reliance is placed by both the public and the profession on the precautions adopted by the health authorities, whether sufficient or insufficient, in consequence of which a false sense of security is often imparted.

Of no disease is this truer than of diphtheria. When the sanitary officials have disinfected the premises and removed the placard after recovery from this disease, all danger of infection is believed to be ended. The feeling of safety is the same whether this be done on the attending physician's statement that all clinical evidence of diphtheria has disappeared or only on bacteriologic evidence that the bacilli no longer are present.

That fomites infected by a diphtheria patient may transmit the disease to others all seem to recognize. Terminal disinfection of the sick room and its contents, therefore, is universally employed. Seldom, however, is any effort made to discover and disinfect animate carriers of the contagion. Yet it has been shown repeatedly that Klebs-Löffler bacilli from a diphtheria patient may be deposited on the skin or mucous membrane of persons coming in contact with him, and that throats so infected may retain the organisms for weeks and months.

PROPORTION OF "CONTACTS" INFECTED

During the past four years I have discovered diphtheria germs on the throats of many healthy persons who had been in contact with persons suffering from clinical diphtheria. These so-called infected "contacts" or diphtheria "carriers" were found in orphanages and homes, in public schools and in private dwellings.

The healthy inmates of several homes for children were examined bacteriologically during nine different outbreaks of diphtheria, as many as 124 being examined on one occasion and as few as two on another. The percentage found infected varied from 50 to none, the average for the nine epidemics being 9.14 per cent. Altogether, 269 individuals were examined, of whom 35 (13 per cent.) harbored the germs. On four occasions children suffering from sore throat were examined, the greatest number tested at one time being eight and the smallest four. The percentage harboring diphtheria

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

bacilli, and in consequence regarded as cases of latent diphtheria, varied from 100 per cent. to 33.3 per cent., the average being 62.5 per cent. Of the 22 examined altogether 12 (55 per cent.) had latent diphtheria.

In eleven private dwellings, where one of the family was sick with diphtheria, the healthy inmates were cultured, from eight to one being tested at a time. The percentage infected was 100 per cent. in three instances and zero in one, the average of the eleven being 57.3 per cent. The total number examined was 40, of which 22 (55 per cent.) were infected. In four of these houses persons with sore throat were similarly investigated, the number in each house not exceeding four and in one instance being as small as one. From 66.6 per cent. to 100 per cent. of cases of latent diphtheria were discovered, the average being 91.6 per cent. Of the 10 examined the report was positive in 9 (90 per cent.).

In a block where several cases of typical and latent diphtheria had occurred, three children who were suffering from sore throat were examined, two (66.6 per cent.) proving to have latent diphtheria.

Twenty-three school children who had been in contact in the class room with a child convalescent from latent diphtheria and with one who subsequently developed the disease, and who themselves exhibited reddened fauces or enlarged tonsils, were examined bacteriologically, but only one (4.3 per cent) was found infected. The details of all these cases may be obtained from the histories appended.

The figures just given correspond fairly well with those of other observers. These latter have recently been compiled by Graham-Smith.¹ According to them 66 per cent. of the members of the family to which the diseased person belonged were infected, the proportion being higher (100 to 50 per cent.) in families in which no precautions were taken to isolate the sick and much lower (10 per cent.) when every precaution was taken. Of the more distant relatives examined, 29 per cent. were found to be infected. Bacilli were found in 37 per cent. of persons in attendance on the sick. Observations on the inmates of hospital wards and institutions showed that 14 per cent. are likely to give positive cultures when diphtheria occurs among them. In infected schools 8.7 per cent. of the scholars were found to be harboring the germs.

THE INFECTED "CONTACT" A SERIOUS MENACE

An infected "contact" may later develop diphtheria, typical or latent, or he may remain healthy. In either instance he is capable of transmitting virulent bacilli to others, who may then develop clinical diphtheria in a mild or a severe form, or, remaining healthy, may themselves act as diphtheria "carriers." Consequently, the infected "contact" is as great a menace to the public health as is a patient convalescent from diphtheria; for in the one, as in the other, it is the presence on the mucous membrane of diphtheria bacilli that makes them a source of danger. In point of fact, the former is even the more dangerous, for he goes about among healthy people unrestrained, while the convalescent usually is isolated until the bacilli disappear from his throat.

I believe that it is the latent and "carrier" cases that are mostly responsible for the prevalence of diphtheria in cities where the usual precautions are taken in regard to clinical cases that are reported or "notified" to the health authorities. Not until these hitherto unrecog-

nized cases are discovered and removed as sources of contagion will much headway be made in checking the spread or preventing the occurrence of diphtheria.

In a large proportion of diphtheria cases the source of the infection is unknown, the patient never having been in contact with the disease; and yet in every instance there must have been some contact with an animate or inanimate carrier of the Klebs-Löffler bacilli. Is it not fair in these cases to assume that the sick person has been in close proximity in the street car, shop, factory, office, class room or dwelling with an unrecognized case of latent diphtheria or with an infected "contact" or diphtheria "carrier"?

I have tabulated, with a view to ascertaining their possible sources of infection, 268 cases of typical diphtheria and 130 cases of latent diphtheria that I have investigated, most of them in my capacity as assistant medical inspector of the bureau of health.

By typical diphtheria I mean cases with pseudo-membrane. I regard as suffering from latent diphtheria all persons giving positive cultures who exhibit some pathologic condition, local or general, unassociated with pseudo-membrane. Healthy infected persons I term infected "contacts" or diphtheria "carriers." The cultures were examined by the city bacteriological laboratory, which judges the organisms according to morphology alone. It is possible that in some instances what I have called latent diphtheria may have been cases of ordinary tonsillitis in whose throats a non-virulent diphtheria-like organism chanced to be present. It is only fair to state that from ten of these so-called cases of latent diphtheria discovered in school during a diphtheria epidemic pure cultures were isolated and inoculated into guinea-pigs. Only two of the pigs died and in but one were Klebs-Löffler bacilli recovered at autopsy. Considerable time elapsed, however, in many instances between the dates of the first culture and the one that was tested for virulence, seventeen days intervening in one case. It is conceivable that virulent Klebs-Löffler organisms may have been present at first and were replaced later by non-virulent bacilli, as is the usual occurrence in true clinical diphtheria. Still, from the public health standpoint, I feel that these doubts are outweighed in importance by the fact that virulent bacilli remained for twenty days on a boy's throat despite vigorous anti-septic measures and that seven persons with latent diphtheria gave typical diphtheria to others.

TABLE SHOWING POSSIBLE SOURCES OF INFECTION

	Typical Diphtheria. No. Cases.	P.C.	Latent Diphtheria. No. Cases.	P.C.
Total number of cases investigated.....	268	..	130	..
Case of typical diphtheria in same house	57	21	23	17.5
Case of latent diphtheria in same house..	8	3	4	3
Infected "contact" diphtheria in same house	5	2	1	1
Case of sore throat in same house.....	12	4.5	6	4.5
Case of typical diphtheria in same school or Sunday school.....	29	11	20	15.5
Case of latent diphtheria in same school or Sunday school.....	10	4	56	43
Case of typical diphtheria in same factory	0	0	1	1
Case of typical diphtheria in same street.	3	1	3	2
Case of typical diphtheria in school at- tended by other members of family....	14	5	0	0
Case of latent diphtheria in school at- tended by other members of family....	1	0.5	0	0
Case of typical diphtheria in Sunday school attended by other members of family	2	1	0	0
Inmate of institution with no history of recent known contact.....	14	5	1	1
No history elicited of direct or indirect contact as above (exclusive of inmates of institutions)	113	42	15	11

1. "The Bacteriology of Diphtheria." Edited by G. H. F. Nuttall and G. S. Graham-Smith, Cambridge, 1908.

In most of the cases of typical diphtheria where no history of direct or indirect contact was elicited no inquiry was made as to the existence in the house of cases of sore throat. Many attended schools outside of my district (which included about one-fiftieth of the population of Philadelphia). Not being acquainted with conditions in those schools, I did not know whether or not cases of diphtheria had occurred there. Probably more attended infected schools than the figures show. Had cultures been taken of the cases of sore throat existing in the same house with the patient many doubtless would have proved to be instances of unrecognized latent or mild diphtheria.

Patients who attended schools where pupils had recently been stricken with diphtheria did not necessarily contract the disease from those pupils. It is possible that some may have been infected by unrecognized cases of latent diphtheria or by healthy diphtheria "carriers" who were attending school in ignorance of their infectivity and who may themselves have been infected by the first cases that occurred. In like manner, when other members of the family attended schools where diphtheria was prevalent they may have become infected, though remaining healthy, and may thus have brought the germs home to the susceptible children. Enough has been shown, at any rate, to demonstrate how great a factor in the spread of diphtheria is the unrecognized human carrier of contagion.

DISCOVERY AND CONTROL OF INFECTED "CONTACTS"

The one thing, however, that probably more than any other prevents public health officials from taking action in regard to the infected "contacts" is the knowledge that healthy persons may have in their throats diphtheria-like bacilli indistinguishable, morphologically, from virulent Klebs-Löffler bacilli, but which, nevertheless, are harmless. Many bacteriologists regard these as varieties of or attenuated or modified Klebs-Löffler organisms. Others believe them to be completely distinct from the latter and refer to them as the Hoffman or pseudo-diphtheria bacilli. Whichever view is accepted, the fact remains that non-virulent diphtheria-like bacilli frequently are present on the throats of healthy persons.

Depending on cultural tests alone, such persons, when found in the same house with a diphtheria patient, would naturally be looked on as infected "contacts," and when suffering from sore throat could easily be mistaken for cases of latent diphtheria. It is no wonder, therefore, that health authorities hesitate before applying restrictive measures to those inmates of a diphtheria house whose throats may give positive cultures.

However, as I recently pointed out,² the consensus of opinion among bacteriologists and sanitarians is that the diphtheria-like bacilli found in the throats of healthy persons who have not been in contact with cases of diphtheria, typical or latent, or with infected "contacts" are practically always non-virulent. On the other hand, the diphtheria-like bacilli found in persons who have recently been in contact with the disease are usually virulent.

Consequently, public health officials would undoubtedly be justified in demanding that the inmates of an institution, hospital ward or private dwelling which contains a diphtheria patient be examined bacteriologically, and, if found infected, be isolated until the bacilli disappear. But owing to the possibility of the organisms

being non-virulent, I think that inoculation tests on guinea-pigs should be made when requested by a healthy infected "contact" or by his physician, and, in the event of the animal surviving, that all restrictions should be removed.

The measures here recommended I have been carrying out whenever possible since September, 1906. While attending a case of diphtheria I invariably take cultures of the throats of all the inmates of the house. In institutions and dwellings that I visit as medical inspector, however, I am permitted to take cultures only when the attending physician requests it. All persons found infected are confined to the house; many are isolated; a few are sent to the hospital.

The beneficial results of such a procedure and the unfortunate consequences of its omission may be seen from the appended histories of epidemics that have occurred at various times in institutions and private families. Institution A, for instance, had experienced prolonged epidemics despite the fact that every recognized case of diphtheria was sent to the hospital and the building disinfected. But when all the children were examined bacteriologically and those found infected isolated, spread of the disease was speedily checked. The reverse occurred in Institution B. On one occasion discovery and isolation of the infected "contacts" had brought an epidemic to an early termination. At a subsequent outbreak, when this was not done, the disease persisted for several months. In both institutions children who had been immunized contracted diphtheria after the effect of the antitoxin had worn off.

Protective doses of antitoxin were always administered to the healthy inmates and unquestionably were an important aid in fighting the epidemics. Their greatest value, in my opinion, lies in protecting the non-infected healthy children from the infected healthy children, and in protecting the latter from themselves. The antitoxin does not influence the bacilli, which still persist in spite of it.

Infected children, despite their immunization, remain dangerous to all unprotected persons with whom they come in contact, and even, as soon as the period of immunity has expired, to those who have received prophylactic injections. In Institution E, infected "contacts" gave typical diphtheria to children admitted to the Home subsequent to the immunization, to a servant who had refused the antitoxin and even to inmates who had been protected two months previously. Hence the necessity of discovering the diphtheria "carriers" and isolating them until bacteriologically clean, in addition to general immunization.

Routine bacteriologic examination of all those living in a house where diphtheria has occurred will sometimes disclose the original source of infection, as happened in house infection C.

When secondary cases arise in a family where one member has had diphtheria the disease is not necessarily communicated by the patient, but may be transmitted by a healthy infected "contact." This is clearly shown in house infection A.

That persons who have never been near a case of clinical diphtheria may contract the disease from a diphtheria "carrier," house infections B and II give ample evidence.

The latter also illustrates how persons become infected in an industrial establishment and remaining healthy themselves may yet give diphtheria to others.

² Latent Diphtheria a Public Health Problem, *THE JOURNAL* A. M. A., July 6, 1907, xlix, 30.

Without asserting any relationship between cause and effect, I merely mention the fact that during an epidemic of diphtheria, in the course of which I discovered and isolated many cases of latent diphtheria, there were markedly fewer cases of typical diphtheria in my district than in an adjoining district where such measures were not carried out.

Appended will be found detailed histories of epidemics in institutions and private dwellings with brief accounts of the culturing of healthy contacts.

CONCLUSIONS

1. Persons coming in contact with a diphtheria patient frequently have virulent Klebs-Löffler bacilli deposited on their mucous membranes.

2. Such infected "contacts" may later develop diphtheria or, remaining healthy, may act as diphtheria "carriers," transmitting the bacilli to others who thereupon may develop the disease or may themselves become diphtheria "carriers."

3. To prevent their becoming a source of danger to others, diphtheria "carriers" should be isolated until bacteriologically clean.

4. Recognition of the infected "contacts" must precede their control. This can be brought about only by taking cultures of the throats of all the inmates of a house where diphtheria exists.

5. Little progress need be expected in the prophylaxis of diphtheria so long as we neglect the animate carriers of the contagion.

DIPHTHERIA EPIDEMICS IN INSTITUTIONS

In all these institutions, whenever a child presented a suspicious throat it was immediately isolated and as soon as a diagnosis of diphtheria was made it was sent to the hospital. The building was always disinfected on the following day.

Institution A, consisting of a large central building, two cottages and an infirmary. Between May 11 and 20, 1904, four cases of diphtheria occurred. On May 26 I examined six children who had tonsillitis, with positive culture results in four (66 per cent.). Two days later, and again in three days, a diphtheria patient was removed to the hospital. Then forty-eight inmates were immunized but no cultures were taken. Two of these subsequently developed diphtheria, one on June 3 and the other on June 25. An assistant caretaker was stricken on Sept. 12, 1904.

The orphanage then remained free of the disease until Oct. 29, 1906, when a case developed and was removed two days later. The other children, 124 in number, all healthy, were examined bacteriologically and thirteen (10.5 per cent.) were found infected. Eleven did not retain the germs long, but one gave positive cultures for two weeks and another for over three weeks despite vigorous antiseptic measures. The infected children were each given 3,000 units of antitoxin and the rest were immunized. No subsequent cases arose.

An epidemic of scarlet fever began shortly afterward, the patients being sent to the municipal hospital for contagious diseases. On January 13 two cases of diphtheria were reported, another on the seventeenth, and two more on the nineteenth. Cultures taken on January 14 of two children who had been in contact with the patients proved negative. On January 20 the whole institution was immunized and cultures were taken of six children who had sore throats, two being found in-

fect. A child who had not been cultured developed latent diphtheria two days later.

On May 24, 1907, three days after a boy had returned from the infirmary where he had been eighteen days with tonsillitis, another boy in the same cottage contracted diphtheria. A culture taken of the one who had had tonsillitis was positive. All the boys in the cottage were immunized. A case developed on June 24 and another on September 1. On each occasion prophylactic doses of antitoxin were administered to all the children in the infected cottage.

Institution B, a colored home occupying a converted house. On July 11, 1906, two children developed diphtheria, two more cases occurring on July 14. The other children were neither examined nor immunized.

On Oct. 10, 1906, a child contracted diphtheria. The physician in charge, Dr. John M. Swan, took cultures of all the inmates, 36 in number. Six (20 per cent.) were found to be infected. All of these exhibited enlarged lymph nodes on the posterior pharyngeal wall. All but one had enlarged tonsils and a frequent pulse. Only one showed membrane. None complained of headache.³ The infected children were isolated and their throats treated antiseptically. The bacilli persisted in some for a long period.

On March 14, 1907, another case of diphtheria developed. A different physician was in charge, who took cultures only of suspicious cases. Of eight persons with sore throat examined at various times three gave positive cultures. One whose culture was then negative subsequently developed another attack of tonsillitis at which time Klebs-Löffler bacilli were found. All the inmates were immunized on April 3. The germs persisted in one of the cases from March 29 to May 20.

On April 10 another case developed that was not bacteriologically clean until June 5. On June 25 a child who had been immunized developed diphtheria and remained infected until June 18. At no time were cultures taken of the healthy children.

Institution C, a large children's home, having a large building and a separate isolation building. On Feb. 24, 1906, the son of the superintendent was reported sick with diphtheria, and cultures taken on the same day of three suspicious cases showed two of them to be also suffering with the disease.

Two days later nine children with measles who were in the infirmary where the diphtheria cases were isolated were immunized and examined bacteriologically, and the following day sixty healthy inmates received similar treatment. None of the former and three of the latter gave positive cultures. Three more were examined March 1, one on March 3 and two three days later. All were negative.

The home was then free of the disease until Jan. 23, 1907, when a child developed diphtheria. Five of the most intimate "contacts" were cultured, but only one was found to be infected, although another had dull gray patches on both tonsils. The former was isolated until bacteriologically clean. All the more intimate "contacts" were immunized. No case has occurred since.

Institution D, a home for colored crippled children, consisting of two converted dwellings. A nurse developed diphtheria in the fall of 1906, and seven children that showed some abnormality were examined, bacilli being found in three. These were isolated, and all the inmates were immunized. No more cases arose

3. I am indebted to Dr. Swan for these notes.

for nearly two years, a sporadic case occurring in March, 1906.

While at school, Oct. 16, 1906, a child from the home was examined by the medical inspector who was examining the members of her class on account of the prevalence of typical and latent diphtheria among the pupils of that school. Although her throat was only slightly inflamed and received constant treatment, the bacilli persisted for three weeks. On November 4 a child developed fever, vomiting and sore throat, associated with the presence of Klebs-Löffler bacilli, but without membrane formation. The twenty inmates were examined, four being found infected, of whom two had enlarged tonsils.

November 6 a nurse became sick and gave a positive culture, although no membrane was present. She was sent to the hospital and fumigation was ordered. Two weeks later a boy developed typical diphtheria and the following day another infected "contact" was discovered. The home has been free since.

Institution E, a children's home utilizing a large mansion. A sporadic case developed in March, 1905. On Oct. 6, 1907, a child took sick, was treated for "croup" without any precautions being ordered and twenty-four hours later diphtheria was diagnosed. On this day another sick child was said to have "stomach trouble" and was allowed to mingle with the other children until the next day, when a diagnosis of diphtheria was made. All the children in the home were immunized by the medical inspector, who, however, gave 3,000 units to one who seemed feverish, with foul breath, reddened fauces and secretion in the tonsillar crypts. The inspector ordered this boy isolated and his physician summoned. The latter's first impression was that the boy had diphtheria, but as all signs rapidly cleared up he decided that the lad merely had been frightened by the injection.

Another child took sick the morning after he was immunized, complaining of headache but showing nothing abnormal in his throat. Fearing diphtheria, the physician had the child isolated, but as all the symptoms disappeared in a day he finally believed that the boy did not have diphtheria. At the medical inspector's request, however, he took cultures of these children. Both were positive and remained so for eleven days, the boys then being sent to the hospital.

On December 6 of the same year a child that had been admitted to the home only five days previously seemed droopy, and four days later exhibited a false membrane. The physician then examined a child who had been in the home but a few weeks and who for four days had been suffering from a "cold" and one who had been immunized two months before and who was not feeling well, although neither complained of sore throat. Both showed evidence of diphtheria. The other children were promptly immunized. Cultures were taken of eight who had slightly reddened throats, four proving positive and being thereupon sent to the hospital. A chambermaid who had refused to be immunized developed diphtheria two weeks later.

Diphtheria Epidemic in a Block.—Two children in a family developed diphtheria in July, 1906, one going to the hospital, the other remaining at home. The mother, who nursed the latter, gave a negative culture, but a sister, who was healthy and whose throat was clear, was found on July 27 to be harboring the germs. Two months later a culture was still positive. The

yard of this house faces the yards of the houses on the next street.

In one of these houses a boy took sick Sept. 5, 1906, with sore throat. Four days later he was seen by his physician, who diagnosed "abscess in the throat." The child went about the neighborhood. A culture taken on September 15 showed Klebs-Löffler bacilli. The throat was reddened and the tonsils appeared enlarged when palpated externally. The cultures continuing positive, the boy was sent to the hospital.

September 10 his brother was taken with fever, vomiting and diarrhea. The attending physician noticed nothing abnormal in his throat, but thought he detected some pulmonary consolidation, and suspected the existence of typhoid fever. September 15 I was asked to see the patient, and on looking at the throat observed a small, gray, non-typical patch on the right tonsil. The child was very weak. A diagnosis of diphtheria was made and the lad was sent to the hospital, where the diagnosis was confirmed. The culture I took, nevertheless, was negative, but there was a large amount of mucus in the throat at the time.

The mother, who nursed both children, and who herself had a sore throat, gave a negative culture. Another healthy brother was likewise free from germs. A sister had a sore throat from the afternoon of September 16 to the morning of September 17. The mother, who looked at her throat, said it was reddened, but that nothing else was wrong. The girl felt perfectly well, and when I examined her on the evening of September 17 the throat was clear. A culture taken at this time was positive. This girl was working in the kitchen of an apartment house until the report of the culture was received.

September 17 I visited every house on the block and took cultures of all who were suffering or who recently had suffered from sore throat. A little boy living next door to the above mentioned case had been ill with sore throat and gave a positive culture. A boy living two doors away, who had played with the infected children and who had had sore throat, was bacteriologically clean. A child living further down the block, who had played with the infected children and who had a slight sore throat with slightly reddened fauces, was found to be harboring diphtheria bacilli which persisted for over seventeen days. Her mother, who had suffered from pain and stiffness in the side of the neck, was free from germs on September 19.

DIPHTHERIA IN PRIVATE HOUSES

House Infection A.—A child whose mother was a disciple of Dowie died of diphtheria without having received medical attention. After the child's burial the whole house was thoroughly fumigated. Cultures were taken on Dec. 14, 1906, of four children, and on December 18 of the mother and of two elders of the church who had prayed over the child. Only one was positive, that of a sister, R., whose tonsils were enlarged and reddened. All the others were healthy. The mother would not permit immunization nor would she allow the infected child to use an antiseptic gargle or spray or to be swabbed. The child was not isolated, although the bacilli persisted until December 25. The throats of all the children were examined visually and bacteriologically at frequent intervals.

On December 18 M.'s culture became positive. E. took sick on December 25. When seen by me on Decem-

ber 28 she had typical diphtheria, a pseudomembrane being present on the left tonsil. The culture taken December 28 was positive. At the request of the father, who was not a Dowieite, and despite the mother's protests, I assumed charge of the case, administering 2,500 units of antitoxin at once, 3,000 the day following and 3,500 the next day. The child was well on January 7, but despite frequent and vigorous swabbing with a strong formaldehyd solution, the bacilli did not disappear until January 20. The child's nurse and the mother, though healthy, gave positive cultures on January 12, but the next two cultures of both were negative. The father's throat contained no bacilli on January 12.

December 18 V.'s throat was still negative, but on December 28 the culture was positive. On this latter date the mother took the three children, R., M. and V., the last two being infected at the time, to the house of friends who were also followers of Dowie. A culture taken of M.'s throat was examined at the Pepper Clinical Laboratory of the University of Pennsylvania and pronounced positive. (All the other cultures were examined by the Bacteriological Laboratory of the Philadelphia Bureau of Health.) While away this child became sick and was sent back home. When examined by me on December 31 she was sick and complained of sore throat, but had no fever. No membrane was visible. I administered 1,500 units of antitoxin. On the next day the temperature was 99.2 F. and plugs of membrane could be seen in the crypts of the left tonsil. The same condition appeared in the opposite tonsil. The temperature remained slightly elevated for several days. On January 7 the child was well and bacteriologically clean. A culture of V. taken by his father at his retreat on January 13 was negative.

House Infection B.—A child had developed chronic lymphatic leukemia following an attack of diphtheria in December, 1906, and was being treated in a children's hospital. A case of diphtheria having broken out in the ward where the child lay, all the children there were examined and immunized. A number were found infected, including this case of leukemia. The child was sent home and came under my care on June 1, 1907. Despite antiseptic and hygienic treatment, the bacilli persisted until the child's death on June 17. June 8 the child was given 2,000 units of antitoxin in the hope that it might influence the leukemia, in view of the history.

June 15 the mother's median basilic vein was attached to the child's radial artery by Dr. George M. Dorrance and transfusion attempted. The mother suffered from shock and the evening following the operation had fever and sore throat, associated with the presence of a slight membrane. Antitoxin was immediately administered. A culture taken June 15 was doubtful, but one taken on June 16 proved positive. Cultures taken the following three days were negative. The husband was also examined, being found infected on June 17, but free from germs on June 19.

House Infection C.—The families of a brother and a sister lived in the same house. About April 4, 1907, P. C.; the father of one family, was taken with sore throat which lasted all week. A day or two afterward his son, J. C., developed sore throat and headache. The latter was put to bed for a day and in four days felt all right. On April 9 a daughter, M. C., was taken sick with membranous croup and two days later was sent to

the hospital. On the following day the house was disinfected.

I immunized all who would permit it, and took cultures of their throats. The father, P. C., still complained a little of sore throat. The fauces were reddened and the cervical glands were slightly enlarged. The culture taken April 1 was positive and inasmuch as the cultures continued positive for thirty-eight days, despite faithful antiseptic treatment, the man was sent to the hospital. The boy, J. C., when examined April 12 felt well and his throat was normal, but his cervical glands were markedly enlarged. A culture taken then proved positive, but cultures taken ten and twelve days later were negative.

A. McG., of the other family, although perfectly healthy, gave a positive culture on April 12 and it was not until May 11, one month later, that the first negative culture was obtained. The mother of this girl, C. McG., the brother, B. McG., and the sister, M. McG., gave negative cultures on April 12, as did M. C. and H. C. of the other family. This last child, H. C., subsequently developed a mild attack of diphtheria on May 5, twenty-three days after immunization. Diphtheria bacilli were present in her throat on May 7, and as they still persisted on May 22 the child was sent to the hospital.

House Infection D.—About March 17, 1907, H. P. had tonsillitis. Two days later her brother, F. L., had a similar attack. March 26 another brother, L. L., took sick with what was reported to the board of health five days later as suspicions of diphtheria. March 31 the latter's twin, H. L., took sick.

The whole family was examined and immunized on March 31. All of them, the four mentioned above, the mother and another brother, the last two perfectly healthy, were found to be infected. The girl, H. L., kept giving positive cultures up to May 3, a period of thirty-four days. F. L. gave negative cultures after April 12. The twin babies, L. L. and H. L., were sick. L. L. gave positive cultures from March 29 to May 9, a period of six weeks. The last positive culture from H. L. was taken April 12. J. C. gave his first negative culture on April 12. Antiseptic gargles were used by the older children. The babies were swabbed.

House Infection E.—In September, 1906, a little girl suffered with diphtheria in the family summer residence in the country, after which the house was disinfected. A month or so after the family had returned to the city the gardener's child, who had remained in the country, was stricken with diphtheria. About March 1, 1907, the baby of the family which had moved to the city was taken ill with diphtheria.

The rest of the children, seven in number, were at once immunized and removed to another house, where they were placed under my care. Two were found to be free of germs on two successive tests. One gave a negative culture on March 4, positive cultures on March 7 and 10 and negative March 13 and 14. Two gave a positive culture at first, followed by two successive negative cultures. Another gave a series of two positives, followed by two negatives. The one who had been sick in the fall was also found to be harboring diphtheria germs which persisted for two weeks.

The infected children were isolated until two successive negative cultures were obtained, meanwhile gargling and being swabbed with antiseptic solutions. The sick child's nurse and his mother, who was con-

stantly with him, were examined March 18 with negative results. Later, however, before the germs had left the sick child's throat, the mother contracted diphtheria. No cases have occurred since.

House Infection F.—A boy had a mild attack of diphtheria, unrecognized at first. The whole family was examined bacteriologically, the bacilli being absent in the mother, one brother and one sister. Another brother, although healthy, gave a positive culture and remained infected from November 20 to December 17, 1907. Another sister, whose culture was positive, later went through a typical attack of diphtheria, followed by paralysis of the soft palate. No other case resulted in this group.

House Infection G.—A little girl, G. R., was absent from school the week of Nov. 11, 1904, on account of sore throat, but received no medical attention. A child living next door also had sore throat. On November 22 J. R.'s two sisters, F. R. and H. R., developed diphtheria. A brother, P. R., who had left the house on November 24, was taken sick with the disease four days later.

House Infection H.—A girl working in a candy factory contracted diphtheria. Shortly afterward the daughter of the forelady of the sick girl was also stricken with the disease. A culture taken of the forelady proved positive. Although the latter was perfectly healthy and gargled assiduously, the next eight cultures were still positive, the daughter having recovered and been free from germs two weeks before the mother was bacteriologically clean.

House Infection I.—Sept. 7, 1904, a boy contracted diphtheria. Two sisters were immediately sent from the house, but continued attending school. The throats of both were examined visually and bacteriologically September 19. One was normal in every way. The other had no subjective symptoms, but presented greatly enlarged and reddened tonsils and gave positive cultures for twenty-two days.

House Infection J.—The mother and the sister, both healthy, of a diphtheria patient were examined for the Klebs-Löffler bacilli, which were found present in both persons.

House Infection K.—Cultures were taken of the mother and two brothers of a diphtheria patient. One brother was infected, the others were not. All were healthy.

LATENT DIPHTHERIA IN PRIVATE FAMILIES

The healthy brother of a person with latent diphtheria was found to be harboring the germs. Cultures taken of two healthy sisters of a person with latent diphtheria both proved negative.

SCHOOL CONTACTS

A girl, J. R., probably convalescent from latent diphtheria (see House Infection G) was in school from Nov. 21 to 23, 1904. Her sister, F. R., who developed typical diphtheria November 22, had been in school that same day. All the children in the same classes with these girls were examined by the medical inspector and cultures were taken of all those that exhibited reddened fauces or enlarged tonsils. Of the seven cultures taken in J. R.'s class all were negative. Twelve of F. R.'s classmates were examined bacteriologically; only one was found infected. Four children from other classes tested at the same time were all found to be free from germs.

BISMUTH PASTE IN THE TREATMENT OF SUPPURATION OF THE EAR, NOSE AND THROAT

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The use of bismuth paste in general surgery has been followed with such excellent results that, except for the fact that the nose and middle ear and their accessory cavities are non-collapsible and lined with mucous membrane, one might reasonably expect equally good results in the treatment of chronic suppurations of the nose, throat and ear. Nevertheless, my results have been so satisfactory and encouraging that I desire to present my efforts to the profession.

I began to employ the paste shortly after Dr. Emil Beck noticed cures in his cases of chronic suppurative fistulas and abscess cavities; that is, about one year ago. During this period I have treated 319 cases, which are classified in the accompanying tables, and the results of treatment noted.

Judging from the manifold varieties of pathologic conditions in which I employed the paste, one may be led to believe that my enthusiasm has carried me too far, and that I am trying to apply the bismuth paste as a panacea for all ills. I acknowledge that I am enthusiastic, but I have never employed a treatment with as much satisfaction as this one.

It will be well to define beforehand what is meant by a cure of a chronic suppuration of the accessory cavities of the nose and ear. To my mind, when the cavities have stopped discharging pus, the mucous membrane appears healthy and the functions of smell, taste and hearing return, as well as the symptoms of pressure and obstruction disappear, one may accept that as a cure. We all know that perfect resolution is not to be expected, owing to some fixed changes and destructions, as necroses, adhesions and atrophies.

I have taken radiograms in some of the cases showing the frontal sinus, ethmoid, antrum and sphenoid before and after being injected, in order to determine how long the bismuth will remain in the cavities, but came to no definite conclusion.

TECHNIC

The principal point in the technic is to be able to reach the very depth and every part of the infected area. The necessary equipment consists of four varieties of the paste and the syringes, with various-shaped tips and canulas (Fig. 1).

PASTE 1	
Bismuth subnitrate	33
Vaseline	67
PASTE 2	
Bismuth subnitrate	30
Vaseline	60
White wax	5
Paraffin, melt 120°	5
PASTE 3	
Bismuth subnitrate	30
Vaseline	50
Paraffin	10
White wax	10
PASTE 4	
Bismuth subnitrate	30
Vaseline	35
Paraffin	25
White wax	10

The paraffin and white wax are added for the purpose of obtaining more firm preparations, when so specially indicated.

Paste 1 is used principally in the localities where one wishes to cover rather than to distend, and I have used it as a local treatment in the nasal mucous membrane in hypertrophic rhinitis, and have given it to the patient in the collapsible tube.

Paste 2 I have employed universally, and shall do so for all the conditions except in the filling up of the defect of the simple mastoid operation, when Paste 3 is used. This is also employed as a dressing for the septum and turbinated operations and again as the primary dressing of the radical mastoid (plastic).

Paste 4 is used only in the radical frontal sinus operation to act like a plug.

quires to be metal, inasmuch as the rubber distends and soon breaks.

It is well to keep the syringes in a place not too cold or too warm, as the consistency of the paste is affected by the temperature.

The technic in the special pathologic conditions mentioned will suggest itself to any one and is easy of execution by those who are accustomed to treat these cavities. I only wish to mention some points that have appeared to me as being different from the usual technic. Cocainizing in hypersensitive individuals is at times necessary.

In atrophic rhinitis, ozena, nasal dressing after tur-

SERIES I. NASAL ACCESSORY SINUSES INJECTED WITH BISMUTH PASTE

Description.	Cases.	Bilateral.	Unilateral.	Cured.	Improved.	Not Improved.	Discont. Treat'm.
Chronic suppuration of the accessory sinuses not operated on. Bismuth paste injected in the region of the openings.....	43	19	24	2	10	27	4
Chronic suppuration of the frontal sinus, ethmoidal cells, antrum of Highmore and sphenoidal sinus in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected.....	4	3	1	1	3*	..	..
Chronic suppuration of frontal sinus, anterior ethmoidal cells and antrum of Highmore in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected.....	20	14	6	8	9*	1**	2
Chronic suppuration of frontal sinus and anterior ethmoidal cells in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected.....	9	5	4	2	6*	..	1
Chronic suppuration of antrum of Highmore of dental origin and nasal origin. Primary puncture at inferior meatus. Bismuth paste injection.....	4	1	3	4	..	..	..

SERIES II. INTRANASAL CONDITIONS

Atrophic rhinitis. Bismuth paste injected.....	5	4	1	4	1*	..	..
Luetic ozena. Bismuth paste injected.....	2	2	..	..	2*	..	..
..... rhinitis. Bismuth paste injected.....	1	1	..	1	..	..	..
..... Bismuth paste injected.....	1	1	..	1	..	..	..
..... lated with and following removal of foreign nose. Bismuth paste injected.....	1	..	1	1	..	..	..
Tuberculous vestibulitis. Bismuth paste injected.....	1	..	1	1	..	..	..
Middle turbinectomy in non-suppurative condition. Bismuth paste injected as dressing.....	19	12	7	Checks bleeding, no suppuration, nor odor, no granulation or synechia fol.			
Inferior turbinectomy. Bismuth paste injected as dressing....	14	14	..				
Submucous resection of the septum. Bismuth paste injected as dressing—bilateral	42	No bleeding, granulation or crust formation.					
Hypertrophic rhinitis, principally of inferior turbinated body. Bismuth paste injected	42	42	..	0	30	6	6
Ulceration of the septum. Bismuth paste injected.....	6	2	4	2	4	..	..
Suppurative dacryocystitis. Bismuth paste injected.....	3	..	3	3	..	..	..

SERIES III. MASTOIDS AND EAR

Otitis, external, furunculosa. Bismuth paste injected.....	4	1	3	4	..	..	..
Otitis externa eczematosa. Bismuth paste injected.....	2	1	1	2	..	..	..
Chronic otitis media suppurativa. Bismuth paste injected either through external auditory canal or Eustachian tube.....	30	12	18	12	6	4	6†
Chronic suppuration following the semiradical (Heath) mastoid operation. Bismuth paste injected.....	4	..	4	2	1	1	..
Chronic suppuration after radical mastoid operation. Bismuth paste injected.....	8	1	7	1	5	2	..
Scale formation. Bismuth paste injected.....	3	2	1	3	..	..	..
Acute mastoid operation. Filling defect with Bismuth paste and complete immediate suture.....	7	..	7	7	..	..	..
Semiradical mastoid operation. Bismuth paste injected instead of inflation as a subsequent dressing.....	3	..	3	1	2*	..	..
Radical mastoid operation. Bismuth paste used as a dressing instead of gauze packing and drainage.....	9	1	8	8	1*	..	..

SERIES IV. TONSILLAR AFFECTIONS

Peritonsillar abscess; small incision and injection of Bismuth paste.....	3	1	2	No other return of abscess for one year.			
Chronic lacunar tonsillitis and supratonsillar infection. Bismuth paste injected.....	29	8	21	5	20	2	2

Summary 319

* Still under treatment.

** Operated on by external method.

† Besides 2 operated on.

It is very important to have the preparation of the paste correct, and these are the directions we have followed: To either yellow or white vaselin, sterilized by boiling, then taken off the flame, the bismuth is gradually added and thoroughly stirred. In Pastes 2, 3 and 4 the wax and paraffin are added in their proper proportions. The syringes are filled while the paste is in the warm and liquid state.

The syringe (Fig. 1) is an essential element in the carrying out of the proper treatment, for until the syringe was perfected the results were not as satisfactory. It is a powerful instrument that works on the thread principle. The flexible tube is essential and re-

binectomies, septum operations, and other conditions in which one desires to fill the nasal cavities completely, one can occlude the posterior choana by placing one finger postnasally in it, or by using a postnasal tampon until the cavity is filled and then removing the tampon. I have, however, discontinued the use of these devices and simply instruct the patients to close off the nasopharynx from the oropharynx by repeating the letter K while I am injecting.

Some of the paste may pass into the postnasal space and drop into the mouth, but sufficient usually remains to do the work. In the injection of the antrum of Highmore one must pack firmly the middle meatus, particu-

larly the nasofrontal duct, in order that the paste may not escape at this point. If there be more than one opening, for instance, in cases of patients previously operated on, with persistence of an opening in the inferior meatus or canine fossa, then one of these openings must also be blocked, for the same reason. These packings are, of course, removed following the injections. In the frontal sinus, ethmoidal region, antrum and sphenoid injections, the general nasal cavity is always thoroughly filled in addition, in order to retain the paste in the cavities and also to affect the mucosa of the general nasal cavity.

The patient is to be placed in the best position to retain the paste while being injected, generally the semi-reclining position.

In the treatment of chronic suppuration of the ear one will necessarily determine the size of the perforation and the presence of a fistula of the labyrinth before injection. A pin-point perforation will not permit free drainage or the easy flow of the paste into the attic and beyond it. The injection of a fistula of the labyrinth may be followed by severe symptoms of irritation. I have employed the paste in both of these conditions and have encountered such difficulties.

In the application of the paste following the radical operation of the mastoid, one will complete the technic in the same way as if he were going to pack with gauze. Just before filling the cavities created by the complete exenteration, the assistant is instructed to press a pad of gauze firmly over the posterior sutured incision, in order not to permit the paste to get under the skin and through the stitches in the incision. This should be done also at the next two subsequent dressings until firm union has taken place.

How often to inject is a matter to be determined by the pathologic conditions and symptoms present. As a general proposition, however, I have reinjected daily until the patient was well or so much improved that less frequent treatments were warranted. Suppurations of the nasal accessory cavities require more frequent injections and much longer time for treatment. In the cases of ear suppuration, in which the discharge stopped, it stopped very soon, and the ear did not have to be re-injected as often. This is accounted for by the fact that the paste was retained better than in the nose and some of the sinuses. The antrum and sphenoid retain the paste longer and better than the frontal and ethmoidal regions.

The good results ascribed to the use of the bismuth paste in this special field are very likely due to several causes. Dr. Emil Beck, in his recent article, read before the International Congress on Tuberculosis, says, in abstract:

Many factors undoubtedly contribute to the healing process, but I am convinced that the bactericidal effect of the bismuth subnitrate is the most prominent one. In nearly every case treated we have noted that the injections are followed by the gradual diminution and final disappearance of the micro-organisms. Tubercle bacilli are no exception. This fact was discovered in a case of tuberculous empyema, and corroborated by another typical case. Whether the bismuth subnitrate destroys the bacilli by its chemical action or whether it exerts a chemotactic power has not yet been definitely determined. I am inclined to believe the latter to be the case. The fact that the number of tubercle bacilli at first increase in number, and are found mostly in the interior of the leucocytes, while before the injections were started they were very scanty and mostly extraleucocytic, supports the chemotactic theory.

My own belief is that in the first place either the bismuth or the nitrate, coming in contact with the tissues, produces such a change in the inflammatory cells and leucocytes of the infected area that they are enabled slowly to destroy the vegetable organisms. When these are destroyed, then the process undergoes resolution, providing that there be not present some foreign body, as a sequestrum or necrosis.

Again, by filling up the cavity, the paste prevents the accumulation of fluid and the ingress of air, which may carry micro-organisms. Or the uniform pressure exerted on the tissues under moderate distention may act beneficially. It can be used as a framework to obliterate a cavity only in the cases of acute mastoid operation or following the radical frontal sinus operation, as shown in my cases.

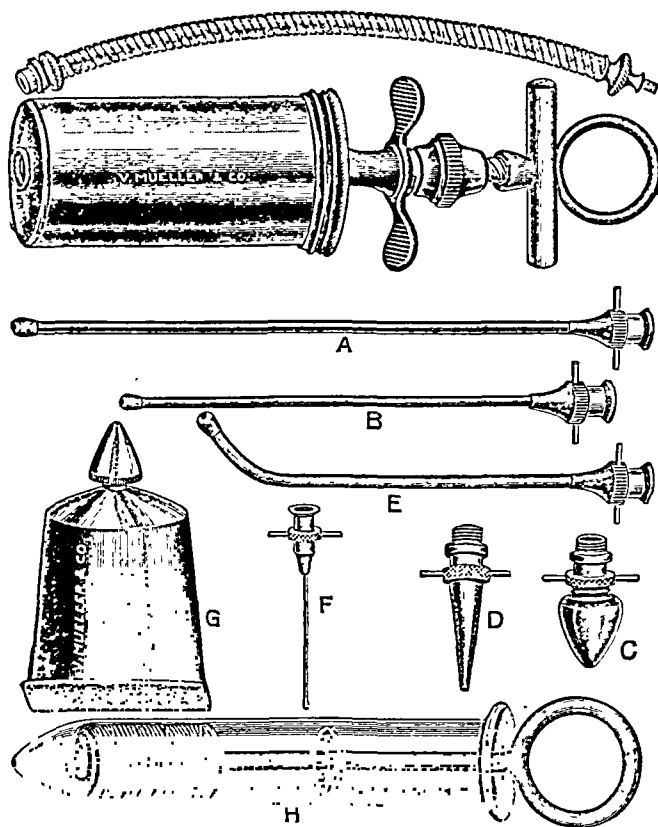


Fig. 1.—Metal syringe for use in injecting bismuth paste into the ear, nose and throat.

Tip A.—A silver canula that can be bent to suit each individual case and is used in the injections of the various sinuses after their openings have been made accessible.

Tip B.—A finer silver canula, which is used for injection into the regions of the nasofrontal duct, sphenoidal sinus region, and the upper, narrowest portions of the nasal cavity; that is, before any operation is done; also into the tonsillar crypts, supratonsillar fossæ, and into the incised peritonsillar abscess cavity.

Tip C.—An olive-shaped tip for injecting the ear paste into the perforations and beyond, even through the tube into the nasopharynx.

Tip D.—Fits into a Eustachian catheter, and is used for injecting the tube and middle ear by the nasopharyngeal route. It is also used to fill up the cavity of the mastoid process after the simple operation.

Tip E.—Eustachian catheter with large bulbous end.

Tip F.—Very fine canula for injecting the tear ducts and other fine fistulas.

Collapsible Tube G.—For the patient's own use for home treatment. While the result from its use will be insignificant, because not all the parts can be reached, it is convenient and necessary in some cases. The conical tip is introduced either into the vestibule of the nose or external auditory meatus, and the paste expressed.

Glass Syringe H.—The same that is used for general surgical work: is practically for the use of the paste in injecting the general nasal cavity, and also the ear, after the sinuses, as well as the middle ear have been filled by the metal syringe. After the various operations on the turbinates and septum, this syringe is used with good effect: in other words, for general application, as the dressing for the nose and ear.

Another factor that must be considered is the coating property of the bismuth to the mucous membrane. That bismuth subnitrate has beneficial properties as a nasal dressing I have been convinced for several years, because I have employed it in connection with gauze packing, impregnating the same after intranasal operations, and I am aware that other rhinologists have also made use of it for the same purposes.

As to the effect of the bismuth subnitrate on the general circulation of the body by its absorption, it can scarcely be considered in our line of work, as the quantities used are too small, and with the exception of the acute mastoid and a radical frontal sinus operations are not pent up for absorption.

Definite toxic symptoms arise from the constant absorption of bismuth subnitrate, namely, a black line along the gums, ulceration of the mouth, albumin in the urine and diarrhea. None of these symptoms has occurred in any of my cases, and the reason for it is probably that too small a quantity is used, and in the majority of the conditions there is a constant escape of the paste. This is in marked contradistinction to the use of the paste in general surgery, in which large suppurating cavities, as those in pleural empyema, joint cavities, etc., are enclosed and bismuth subnitrate is constantly being absorbed.

In support of the bactericidal effect of the paste, I have made observations of about 100 smears in my cases, and have found that with a few exceptions the pathogenic micro-organisms disappeared shortly after its use. Whenever the micro-organisms persisted or returned, the results were poor or negative, and more radical surgical treatment was necessary; in other words, the paste did not reach the infected areas or some pathologic process, as a sequestrum or necrosis, was responsible for the failure. This failure occurred particularly in ethmoidal and mastoid suppurations. In the former condition a very thorough exenteration of the multiple cells is necessary before injection.

In two cases of chronic suppuration of the middle ear in which treatment by bismuth injection was given for a long period and finally radical operation performed, I found that the paste reached only as far as the antrum of the mastoid, and not into it. The antrum and mastoid cells were not much filled with granulations and obliterated, and the paste could easily have passed into them. I concluded, therefore, that this failure of penetration to the remote portion of the mastoid was either due to the escape of the paste through the Eustachian tube into the nasopharynx, or, what was more likely, that the presence of the air in the cells did not permit the paste to flow in. In the second case I attempted to close the pharyngeal orifice of the Eustachian tube by means of a bulbous probe during injections, just before operation, and found precisely the same condition as in the first case. The attic, middle ear and its Eustachian orifice, as well as the aditus ad antrum, were thoroughly packed with the paste. In the very near future, in a radical mastoid operation, I shall open the tip of the mastoid alone and inject, in order to prove this point.

EXPERIMENTAL WORK

I wish to put on record the following subjects of experiment at this time. I will report my results subsequently:

1. Injections of nose and its accessory sinuses and middle ear and its accessory cavities on the cadaver.

2. Comparative study of the chemistry of bismuth subnitrate and other bismuth preparations, and their action on bacteria on artificial culture media, in animals and man.

3. Comparative value of bismuth subnitrate in different strengths and combination of the four ingredients in paste form in chronic suppuration of the nose, throat and ear.

4. Comparative value of bismuth subnitrate, zinc stearate and other zinc salts, calcium salts, barium salts, silver salts, mercury salts and other salts in paste form in chronic suppuration of nose, throat and ear.

CONCLUSIONS

1. The anatomic-physiologic conditions of the nose, middle ear and their accessory cavities play an important part in the healing of chronic suppurations, because they are non-collapsible, lined by mucous membrane and the mastoid and ethmoids are multicellular.

2. In the majority of cases of nasal accessory sinus suppurations some slight operation, as puncture or middle turbinectomy, is essential to a cure; that is, in order to enable one to inject the sinuses properly.

3. The middle-ear suppurations respond very readily to the treatment if the disease process is confined to the cavity of the middle ear, attic and aditus ad antrum, and if no necrosis be present; but when the mastoid cells are involved, and necrosis is present, the result will be practically *nil*.

4. The simple mastoid operation for acute mastoiditis is markedly simplified and healing much shortened by the filling up of the created defect.

5. As a dressing in the radical mastoid it is the procedure *par excellence* and produces more rapid epidermization than any other treatment.

6. When a chronic suppurative middle ear treated for some time by the injection of bismuth paste does not get well, this is an indication for operation, either semi-radical or radical.

7. As a nasal dressing in turbinectomies and septal operations, bismuth paste has served me better than any other in that it checked the bleeding, prevented infection and decomposition and synechial formation, especially in ethmoidal operations.

8. From the great variety of conditions that I have treated and the large number of injections made, I have never had any serious results or complications. I consider this a very safe procedure. At the same time a thorough knowledge of the pathologic anatomy and diagnosis—in other words, the specialist's technic—is absolutely indispensable in obtaining good results.

9. Not enough time has elapsed to say definitely what the limitation of the bismuth paste treatment is, and to-day I would use it in any case of chronic suppurations of the nose, throat and ear. I wish to state distinctly that I never use it in acute conditions, since I have found out that violent reaction followed its use.

10. Finally, this is not the only treatment that will cure or improve chronic suppuration, aside from surgery. Especially are some of the modern modes of treatment, as vaccine therapy, Bier's suction treatment, and irrigation of the sinuses, of inestimable value, and I have had some excellent results from their use, but not as good as from the bismuth paste.

CASE REPORTS

I shall not report all cases in detail. The tables suffice to illustrate the vital points of the total number,

but I wish to call attention to some typical cases of each variety of the disease.

CASE 1.—Patient.—Miss M., aged 24, several years ago, had a violent attack of grip, with very severe head symptoms. After recovery from the acute trouble she constantly suffered from frontal and occipital headaches, especially in the mornings, and there was a constant discharge from her nose and into her throat on both sides. These conditions persisted, only at times she would have worse head pains and the discharge became more and more offensive, but not so profuse as at first. The smell and taste, as well as the sight, were very much dulled. The gastrointestinal disturbances were quite marked at times.

Examination.—There was mucopurulent discharge from both nostrils, below as well as above the middle turbinated bodies. The mucosa had an angry, red appearance of chronic inflammation. The inferior turbinated bodies were hypertrophied; the postpharyngeal wall glazed, and the epiglarynx markedly congested. There was general malnutrition of the body and anemia. Transillumination showed frontal and antral involvement. The x-ray showed the whole anterior group involved.

Operation and Treatment.—This began March 10, 1908, with irrigation of the various sinus regions with mild alkaline solution, followed by suction treatment, and local application of argyrol to the nose and throat. There was some improvement after two weeks, but discharge of pus and other symptoms persisted. Bismuth paste 1 injected in the regions of the various openings of the nasal accessory sinuses, and also the whole general nasal cavity, for about two weeks, appeared to improve the condition to some extent. I then removed the whole middle turbinated body on the right side, eurented the ethmoidal region, enlarged the nasofrontal duct by Good's rasp, and opened the sphenoidal opening by the curette sufficiently to enter with the canula of the bismuth syringe. I punctured the antrum at the inferior meatus with Krause trocars. I then injected the frontal, sphenoidal antrum and ethmoidal region, as well as the entire nasal cavity on the right side, but for control I did nothing on the left. I treated this side with irrigation, suction, etc. The patient had practically no bleeding following the operation. The after-treatment consisted in refilling the above-mentioned sinuses and nasal cavity until the discharge stopped and other symptoms improved, which was in about eight weeks. The left side did not improve at this time, and so the same treatment was carried out on the opposite side.

After four months the patient was completely cured.

I had four of this kind of cases with the result given in accompanying tables. Thirty-one cases, differing only in that the suppuration existed in the anterior group of sinuses, as the frontal, ethmoidal and antrum, were treated in the same manner, with results given in the accompanying table.

CASE 2.—Patient.—Mrs. H., aged 26, for several years had been having trouble with her nose. Large crusts accumulated in both her nostrils, which she would with difficulty expel every morning. An offensive odor was present, with no sense of smell or taste.

Examination.—The patient had been under treatment by the usual method for a long time. The usual picture of atrophic rhinitis was presented. The pharynx was glazed.

Treatment.—Both nasal cavities were filled to distention with bismuth paste 2 every day for two weeks. The post-nasal space was closed off by either the finger or temporary introduction of a postnasal tampon. At that time the crusts did not form. The treatment was carried out every other day for another month.

Result.—I then declared the patient cured. I mean that the mucous membrane had a very good appearance, and the crusts did not form. The odor was absent, and the pharynx was not so dry and patient felt well. The sense of smell did not return, but the taste was improved. I gave the patient the collapsible tube, filled with bismuth paste 1, to use at home every evening, to fill her nostrils, and instructed her while doing so to repeat the letter K in order to prevent the paste from falling into the nasopharynx and below.

CASE 3.—Patient.—Mr. D., aged 27, complained of a nasal obstruction, and constant dropping of mucus into the throat, compelling him to expectorate. This had been present for a long time.

Examination.—Both inferior turbinated bodies were hypertrophied and there was a slightly deviated septum, also a chronic pharyngitis.

Treatment and Operation.—I used bismuth paste 2 for about two months, filling the general nasal cavities to full distention every day, and usually on the following day would find remains of the paste within the nasal cavity. There followed very little change in the hypertrophy, but the mucosa appeared healthier and the nasal discharges less in amount. Patient expressed a sense of improvement. I next performed a partial inferior turbinectomy on both sides, and filled the nasal cavities completely with bismuth paste 3. Practically no bleeding followed. Next morning, as well as the following three days, the nose was refilled with the same paste. On inspection of the wound surface there were neither granulations nor the usual reaction that follows packing or other methods of dressing. In similar cases, if at the time of operation there occurs considerable bleeding, or if the posterior ends are markedly hypertrophied, I employ my concho-angiotribe (Fig. 2), which prevents any hemorrhage. The final result was perfect nasal breathing.

CASE 4.—Patient.—Mr. McE., complained of unilateral deafness and difficulty in breathing through left side of nose.

Diagnosis.—Deviated bony and cartilaginous septum. Retracted left tympanic membrane.

Operation and Treatment.—I resected submucously the cartilaginous and bony septum by the Killian method. Bringing the flaps in apposition and holding them by a clamp, I filled

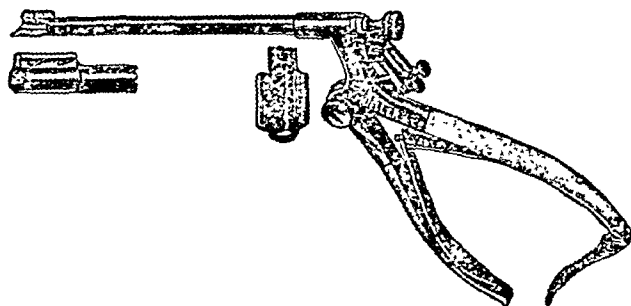


Fig. 2.—Angiotribe.

both nasal cavities to full distention, especially the vestibular regions, using paste 3. This latter procedure was repeated the next day.

Result.—On the third day the septum was thoroughly healed and, no evidence of hematoma or infection being present, the result was considered perfect.

CASE 5.—Patient.—Mr. E., aged 26, complained of severe pains in his left ear, especially when his outer ear was touched, of some dizziness, and of not hearing well with the left ear. He had a running ear since childhood, which stopped for as long a time as one year.

Examination.—This showed marked stenosis and much inflammation of the external auditory canal. There was scanty, foul-smelling discharge, smears of which showed a very short bacillus and staphylococcus; also a number of non-pathogenic micro-organisms, as proved by Petri dish colony culture. The tympanic membrane was perforated at the lower anterior quadrant, the perforation being of the size of a millet seed, the remainder of the tympanic membrane being intact, but very much thickened. Test of hearing showed reduction in the lower tone of about one-half. Bone conduction much increased on that side (the Rinne test was negative). Test of the vestibular apparatus showed same intact by means of the Berany method (hot and cold water). Nasal examination showed a marked deflection of the septum (cartilaginous) to the left.

Diagnosis.—1. Chronic suppuration of the middle ear. 2. Acute exacerbation of chronic external otitis.

Treatment.—This consisted at first of gauze drainage and inflation. Some improvement followed after two weeks. The acute external trouble was promptly relieved by moist dressings of lead acetate solutions. Discharges from the middle ear were examined and still showed the same micro-organisms. Submucous resection of the septum and above treatment, continued for two more weeks, resulted in no improvement, except that the dizziness disappeared. At this time began the use of bismuth paste 1 by means of the Eustachian catheter for one week. Secretions were again examined microscopically. A marked diminution of the micro-organisms was found. I now injected bismuth by way of the tube as well as the external auditory canal, using paste 1 by former method, and paste 2 by the latter method. This treatment was repeated every third day for two weeks. At the time of the injection the patient always complained of dizziness, which, however, disappeared in a few moments afterward, and was explained by the pressure on the labyrinth by the bismuth paste. After this period the paste was thoroughly removed from the canal, as well as through the perforation by the suction method, and inflation, and examined two days later, when I discovered that the ear was dry and that the perforation was closing.

Result.—One week later the perforation closed and the tympanic membrane showed the usual anatomic parts. The hearing is now practically normal and the patient is considered as cured. The patient was seen two months later in the same satisfactory condition.

CASE 6.—Patient.—Mr. L., aged 38, for many years had been afflicted with a foul-smelling discharge from his left ear, and for the past six months (one and one-half years ago) had been having great pains along side of the head, and at times nausea and vomiting and marked dizziness.

Examination.—A large granuloma practically filled the whole external auditory canal. There was a scanty discharge, the smears of which showed a pneumococcus of Friedlander in almost a pure culture. Temperature every day was about 101 F. Hearing was markedly reduced. There was general anemia and malnutrition.

Operation and Treatment.—The first steps were removal of the polyp which measured a little over one-half an inch; gauze drainage for the next two weeks; repeated cauterization of the stump; silver nitrate and alcohol instillations. The local condition improved considerably; the pain in the head was lessened, and temperature became normal. The discharge was more profuse. The next measure consisted in local instillation of drops and irrigations, with practically no improvement whenever the treatment was discontinued for a day or two. The third step was radical mastoid operation, with gauze packing. The usual uneventful recovery followed, but the discharge, while less in amount, still continued and appeared to come from the region of the posterior semicircular canal. The patient frequently complained of attacks of dizziness. In December, 1907, the patient was subjected to the vaccine therapy by preparing the autogenous vaccine from the aural discharges (pneumococcus). The opsonic index, which at first was very low (0.63), was raised following the third vaccination to nearly 1. But the discharge, while becoming a little less in amount, continued for about two months. When again examined microscopically, it showed the same micro-organisms. On March 1, 1908, I began the treatment by means of bismuth paste 2 by way of the auditory canal under considerable pressure, following which the patient became very dizzy and on attempting to rise would fall to the affected side. Nausea very marked, and nystagmus to the affected side took place. Drs. Hanau Loeb, of St. Louis, and Emil Mayer, of New York, were present at this interesting observation. My diagnosis was that there was an erosion or exposure of the semi-circular canal, and that some of the paste had entered the same. These symptoms, however, subsided after a few hours. I reinjected, though not with as great an amount of pressure, every day for the next two weeks. Then I removed all the paste and after two days re-examined and found that the discharge had changed to one of a more watery character. Microscopic examination showed but few pneumococci. I reinjected every other day for a month, and again repeated the above examination and found that the smear was free from

micro-organisms. I reinjected and requested the patient to return a month later, at which time I found the paste in a dried-up state.

Result.—After the removal of the paste the ear healed completely and epidermized. The dizzy spells have also disappeared, but the patient's hearing remains very poor.

CASE 7.—Patient.—Mrs. O'B., aged 68, for the past six months had had a running right ear, following a cold in the head, in spite of the care of her family physician. About two weeks previous to examination she had another bad cold, followed by pains in the ear and back of the ear, with a swelling extending down the side of the neck, and generally feeling bad. Her hearing had been much impaired within the last two or three weeks.

Examination.—This showed marked swelling over the right mastoid region, especially at the tip and below the tip. The canal was filled with a purulent discharge; there was no odor. The upper posterior canal wall was sagging; tympanic membrane was perforated at the posterior quadrant, the remaining portion being much thickened and congested. Smears of the discharge showed small bacilli and cocci, most probably of an influenza.

Diagnosis.—Acute mastoiditis; exacerbation of a chronic purulent otitis media.

Operation and Treatment.—Under a local anesthetic, subperiosteal, using 2 per cent. cocain, and 1 to 1,000 adrenalin mixture, I performed the simple mastoid exenteration, taking care to preserve the periosteum. The entire mastoid process, including the antrum, was thoroughly exenterated of its granulation. The cavity was made bloodless by an adrenalin pack for a few moments; I then filled the cavity entirely with bismuth paste 3. Four strands of silkworm gut were placed over this mass and allowed to come out at the lower angle of the wound for capillary drainage, and uniting the same completely along its entire extent. A small strip of ear gauze was inserted into the external auditory canal.

Postoperative History.—The patient stood the operation without experiencing the least pain or shock. On the following morning the temperature was normal, and the patient felt perfectly well. The wound was dressed on the third day. The gauze was removed and found to be dry. Examination of the canal showed it to be dry and the perforation closing. Posterior incision appeared angry, red and edematous. There was slight, fatty drainage along the silkworm-gut sutures. The temperature remained normal during the rest of the time. The dressings were repeated daily and showed the redness and swelling at the posterior incision rapidly disappearing, and the silkworm-gut threads were removed on the sixth day and wound closed. The test of hearing showed practically normal hearing. Examination of tympanic membrane showed perforation closed. Six weeks later the patient was still in the same condition.

CASE 8.—Patient.—Mr., L., aged 34, ever since childhood had had a running ear associated at times with severe pains on the left side of the head. A few years ago, while living in Holland, he had a violent attack of mastoiditis and was advised to be operated on.

Examination.—A very firm body of bony character practically filled the entire external auditory meatus, and was attached to the upper posterior margin. Along the anterior inferior slit a thin cotton wound probe demonstrated a foul-smelling pus, containing few cocci. The hearing was practically nil, Rinne was very much shortened and positive.

Operation and Treatment.—Radical mastoid. The hard, bony body proved to be an osteoma. The antrum, aditus and attic were filled up with masses of cholesteotoma, and the remains of the ossicles were necrotic. The mastoid process was sclerotic. The usual technic of a radical mastoid, plastic operation, was performed. The assistant was instructed to hold a pad of gauze firmly over the retro-auricular closed incision on to the bone, and I filled by way of the external auditory meatus the exenterated cavities, attic, aditus and antrum, antrum and mastoid cells as well as the auditory canal to full distention with bismuth paste 3, thus holding the flaps in position and the assistant preventing the paste from escaping under the periosteum and through the incision. This

procedure of refilling with the assistant holding the retroauricular region was performed after two days and after that only once a week for a period of three weeks.

Result.—At the end of this time the paste was removed, and I found the cavity entirely epidermized. The usual large canal, especially in the region of the aditus ad antrum and attic, was wanting, and in its stead was a formation, hard in consistency and possibly of bony character.

In other cases, after similar treatment, this formation was not present to the same degree, but the canal is always smaller in the aditus region than that obtained by means of packing. I am not particularly sorry for that, as the large canal only harbors epithelial masses. This case was an example of the most rapid epidermization I have ever seen.

CASE 9.—Patient.—Mr. S., referred by Dr. D. for acute mastoid operation, similar to case of Mrs. O'B.

Operation and Treatment.—After thorough exenteration of the mastoid cells, the cavity was filled with gauze and drained for three days, after which the gauze was removed and bismuth paste 3 substituted. Injections were repeated every three days for two weeks; then once a week for three weeks.

Result.—The cavity was healed. This case is an example of more rapid healing, fewer granulations, and less defect than obtained by the usual method of gauze drain.

CASE 10.—Patient.—Mr. B., aged 49, as long as he could remember, had had a discharge of pus from his left nostril, associated with headaches, especially over the eyes, and difficult breathing through left nostril.

Examination.—This showed marked tenderness over left frontal sinus in contradistinction to the right sinus. Transillumination was positive on the left side. Radiogram showed involvement of left frontal, ethmoidal and antral regions. Examination of the nose showed multiple myxomatous polypi and mucopurulent secretion on left side, the right being free.

Operation and Treatment.—The first steps were removal of the multiple polypi, middle turbinectomy, ethmoid curettement, and puncture of the antrum and inferior meatus, and immediate injection with bismuth paste 2. The entire nasal cavity was daily filled with the same substance. The patient much improved as to his frontal headaches, but after six weeks of this sort of treatment he still had a purulent discharge from the frontal duct. Passage of the canula into the frontal sinus was impossible. A second operation was therefore performed. After local periosteal anesthesia over the left eyebrow a small incision was made down through the periosteum into the bone, and a small opening was trephined, into which the tip of a metal syringe was introduced and the cavity filled to distention with paste 2. By nasal examination observed during injection, the escape of the paste from the nasofrontal duct. This region was firmly packed, the sinus (frontal) injected through the external opening until it returned along the tip. The small incision was closed with one suture.

Result.—The patient made an uneventful recovery and I trust the trouble will not return.

CASE 11.—Patient.—Mr. P., aged 47, for about one year had been suffering with headaches over the eyes. These pains increased in severity, and since the last two months he had attacks about once a week that were almost unbearable and required the physician's aid, who has given him a hypodermic injection of morphin. The pains were worse in the morning.

Examination.—The eyes were practically negative. In the nose there was no evidence of pus, but a polypoid mass was seen under the anterior end of the middle turbinated body, and this body was crowded towards the septum, especially on the left side. Transillumination and radiograms were positive of frontal sinus involvement of the left side.

Operation and Treatment.—The first step was removal of middle turbinated body and ethmoid curettement. The result was only partial relief from head pains. After waiting for several weeks, I decided to do an external frontal sinus operation, according to my method of osteoplastic flap. I found the left frontal sinus filled with pus and edematous lining membrane. The right was free. The result as to the headaches was good; the patient was free from them, but there developed a retention and discharge at the external canthus end of the incision. After a brief period of time I decided to re-enter the

frontal sinus from without and under local anesthesia. I removed the bone flap and completed a modified Killian, not removing the orbital roof or floor of frontal sinus, or performing the usual exenteration of the anterior ethmoidal cells through the nasal process of the superior maxilla. Thoroughly curetting the membranes of the frontals, I filled with bismuth paste 4 and closed completely.

Postoperative History.—The patient made an uneventful recovery; the wound healed within a week, with very little deformity. A subsequent x-ray picture seven weeks later shows the bismuth paste still within the cavity. The nose is in good condition, and healing much shorter than when the cavity is allowed to granulate without the introduction of the paste.

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NOTE.—Because of lack of space, the article is here abbreviated by the omission of some case reports. The complete article appears in the author's reprints.

PROPHYLAXIS AGAINST INFECTIOUS DISEASES FROM THE STANDPOINT OF THE PRACTITIONER *

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Investigations of recent years regarding the transmission of infectious diseases have contributed many facts of profound importance. In their bearing on the point of view that should be adopted by the practitioner they have been especially important, because they have made clearer his powers and his responsibilities. They have, indeed, made more definite and certain the fact, which was always logically evident, that practitioners as a body have more power, and therefore more responsibility, in controlling and ultimately destroying these diseases than have any other persons, even including hygienists and health officers. They have this great power chiefly because, owing to their peculiarly close relations with their patients, they are in a better position than are any other persons to educate the laity into a proper comprehension of what lay relations to infectious diseases should be; and because also practitioners are in command, and in almost all instances they alone are in command, at the critical point, that is, in dealing with the sick themselves when the infection has not yet taken its first step beyond the patient.

NECESSITY OF EDUCATING THE PUBLIC

As to the first of these things that I have mentioned, the power exerted by widely disseminated knowledge is at present so clearly recognized in connection with medical matters, as in connection with others, that it requires no demonstration. One need do no more than refer to the changes that have occurred in connection with tuberculosis. A few years ago the most generally dreaded of all diseases and one of the most hopeless of all problems, tuberculosis has become one of the most encouraging and rational objects of sanitary efforts; and the change has been due principally to the increased knowledge that has been disseminated among the laity regarding the manner of transmission of this disease and the methods of preventing it. We all realize the tremendous influence that education is having in tuberculosis, and we all recognize the profound power that educational measures may exert in all such matters: but it is very striking that we act on this so little

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as we do in the simpler ways that are open to us in the daily course of our lives. There are some very important diseases that could be controlled much more easily and more extensively under present conditions than can tuberculosis, if the intelligent public had an equal comprehension of what needs to be done in these diseases. There are others that could certainly be controlled quite as easily as tuberculosis, and most of the remainder could at least be held in check and reduced in numbers much more successfully than they can now if they also were attacked by similar educational methods.

Yet few of us accept our opportunities to help in doing this. Indeed, many physicians still hold that it is unwise to let the public know much about these things, lest they become unduly fearful and adopt irrational precautions, while many others simply feel that the results of such education are too slight with most human beings to make the effort worth while. Superficially there seems to be some reason in both these objections. Part of the public undoubtedly becomes unduly apprehensive when given a little knowledge regarding matters of this kind, and, unquestionably, with a very large proportion of humanity, teaching has little effect. Yet after all the hysterically apprehensive are a comparatively small fraction of human kind, and not an important one, if tact is used in spreading information; and as to the unreceptive, while they are numerous, they are the very ones that have little influence on the course of the world, and most of them go with the stream, if the current becomes strong enough. The objection that people can not comprehend the meaning of these things is wholly erroneous. If technical knowledge is valuable to the lay public it can always be made comprehensible.

The first thing desirable, to my mind, is a greater dissemination of exact knowledge among the laity regarding the way in which different infections spread, and the methods of preventing this; and this knowledge must come, in large part, not through writings and public meetings, valuable as these are, but through the daily and intimate contact of the practitioner and his patients, and through the acceptance by the practitioner of every opportunity to disseminate simple but correct information regarding these matters. If this is carried out somewhat extensively it will put a stop, I am sure, to a large part of the friction between health boards and practitioners. Much of the difficulty that arises over the intervention of health boards is due to a natural human impulse to rebel when misfortune makes things unpleasant; but a great part of the trouble is due to ignorance, especially to ignorance of the meaning of many of the details that are enforced. A clearer understanding does away with a good deal of the resentment. There will always remain very stupid or very selfish patients, and even doctors. With these force alone will work; but with a somewhat general enlightenment of patients through doctors there will come likewise, on the other hand, a lessening of that not uncommon feeling on the part of health boards that the people they have to deal with have in large part criminal instincts and must be treated accordingly, and there will certainly be a spreading of education among the subordinate officers of health boards in the gentle arts that spring from tact and human kindness. Ignorance in the laity, and tactlessness and thoughtlessness in a few subordinate health officers, are, I think, of about equal influence in producing friction in administering health regulations. A large part of the success of the speaker

who is to follow me has been due to his exceptional capacity for carrying out his duties tactfully and without friction.

As to the second reason that the practitioner occupies a position of great power in controlling these diseases, the fact that he guards the critical point in the defense against infections has become apparent through an overwhelming collection of testimony concerning another fact that has long been logically evident, namely, he in a large proportion of instances has the power, by relatively simple means, to limit the infection to the patient, while if it gets beyond that point it may be disseminated so quickly and so widely, and its course may then be so nearly impossible to follow, that it can never subsequently be known that it has been completely destroyed, and it often takes enormous expense and effort to prevent widespread harm. This is, of course, perfectly apparent in connection with the diseases that are highly contagious, and also in connection with those that are freely spread by means of water or food. We have very many records, for example, of the unfortunate instances in which careless management of one case of typhoid fever has caused devastation in a near-by community through infection of the water supply or the milk—all of which could have been prevented by a few simple orders given by the physician and by his seeing that these orders were carried out. But the importance of very exact regulation of the sick in all sorts of serious infections has been strikingly emphasized and illustrated in recent years by a mass of investigation that has become so convincing that, even if in a few details these are not yet quite justified, we should, nevertheless, for safety's sake, make for ourselves two propositions to guide us in some of our most important regulations with the sick.

THE QUESTION OF CONTAGION AN ACADEMIC ONE

The first of these is that the question whether this or that infectious disease is contagious or not is now, at best, an academic rather than a practical one. Some infections can be transmitted to human beings only by going first through some lower animal; but, given the presence of that suitable intermediate host, they may reappear very quickly in those immediately surrounding the patient or in others that are at a distance. All other infectious diseases, so far as we clearly know, may be, and at times are, directly transmitted from one human being to another. Both classes are transmissible, and the question whether they are what we have called contagious or not is now a wholly indefinite one. The practical questions at present are: In what ways is the disease dangerously likely to be transmitted (that is, by ordinary contact, by food or by water, etc.)? How readily is it transmitted directly under ordinary conditions of contact? How readily and in what ways may transmission be prevented?

The question as to the danger need not be answered in connection with the highly contagious diseases. It is too well answered already by years of experience. As to the common infections that were not long ago classed as non-contagious, I may say this: We have grown well accustomed to looking on tuberculosis as having often been directly transmitted, and all the recent observations greatly emphasize this and make the more remote forms of indirect transmission—even street dust—appear much less important than they have seemed. Recently we have been overwhelmed with a great mass of evidence of the importance of contact infection in

typhoid fever. So important may this be that controlling it may suffice to control a whole local epidemic, as Koch showed in the investigation that was largely responsible for the recent agitation of this question; and Reed, Vaughan and Shakespeare have shown that contact was chiefly responsible for the terrible extension of this disease among the soldiers during the war with Spain.

As an illustration of the extent and the reality of the danger in this disease I may mention that a careful study of over 200 cases under my care, carried out by Dr. Despard, showed that the history indicated strongly that contact was responsible for over 17 per cent. of them, and that in about 8 per cent. more contact was a highly probable cause: an illustration of the fact that, even when we have an active water infection, as we have had in Philadelphia—and, indeed, because we have such a source of cases—contact is very important in spreading the disease. I have also shown that in some general hospitals the whole group of nurses in the hospital are in from six to nine times the danger of the average citizen, though the latter is largely exposed to water infection and though the morbidity of the citizens in Philadelphia has been dreadfully high. With those nurses who are actually engaged in nursing typhoid fever the danger is unquestionably fifteen to twenty times that of the general public, and possibly more than this.

We now recognize equally well that dysentery may be, and often is, transmitted by ordinary contact; and this fact has repeatedly been of terrible significance in institutions, particularly in institutions for the insane, in which generally reduced resistance, together with a lack of appreciation and observance of ordinary care of the person, has often led to a wide spread of the disease. As to the relation between contact infection and the infectious digestive disorders of infancy and early childhood, every observing practitioner is well acquainted with instances in which these have gone through families of little children; and one can hardly ask for any more emphatic evidence of the seriousness and frequency of this matter than the fact that pediatricists are so afraid of such infections that most of them attempt to get babies out of hospital wards as soon as possible after any acute illness, chiefly because of the danger of infections of this sort. Similar gastrointestinal infections are transmitted among adults at times, though such transmission is less frequent with them than with little children, because their resistance to these infections is greater. If, however, from any cause, their resistance becomes decidedly reduced, there is little doubt that they are frequently and sometimes dangerously infected in this way. From observations that I have recently published I am pretty thoroughly convinced that when groups of cases are being treated together, as occurs in hospitals, the serious abdominal complications of typhoid fever may be, and often are, passed from patient to patient through passing on secondary infections which give rise to the complications.

As to other diseases, I need only mention as illustrations a few facts. Pneumonia is known to be at times directly transmitted, and while most persons appear to be resistant to this disease under ordinary conditions, direct transmission may become exceedingly important when the surrounding persons have become reduced in resistance through illness or bad conditions of life. Pneumococcus infections elsewhere than in the lung, especially in the upper air passages, are undoubt-

edly a great factor in the continuance and spread of pneumonia, and these are often very readily transmitted. Meningococcus meningitis appears from recent studies to be, contrary to previous ideals, in all probability usually transmitted by human contact. It is now common knowledge and common experience that influenza, tonsillitis, coryza and such conditions are extremely readily acquired by contact. Thus we see that, with varying degrees, in all the common diseases contact infection plays a rôle, in all a rôle of some importance, and in most of these diseases it is increasing in recognized importance constantly, as we learn more of it. Even in a disease that is as yet classed as an infection only by inference, namely, acute anterior poliomyelitis, a very recent statistical study by Holt and Bartlett has shown that the evidence of direct transmission is at least sufficient to make one pause and reflect. We have, then, in the increasing and already great importance of direct transmission of practically all common diseases, very forcible evidence of the necessity for careful and precise regulations with each patient, in order to prevent the spread of any of the serious infections and to limit the milder ones as much as can reasonably be done.

THE IMPORTANCE OF UNRECOGNIZED INFECTION CARRIERS

The second proposition that we should make is that in great numbers of cases and in many diseases it has now been clearly shown that persons who come into contact with infections frequently harbor the germs of the disease for a long time, even though they show none of the ordinary evidences of it, and also that persons apparently long convalescent from infectious diseases often do the same thing; and in this we have a source of infection comparatively recently recognized, a modified form of contagion, so far as symptoms or their absence go, but a very real form of contagion, and a highly important one, in two ways: first, in that it demonstrates a new source of danger and a new thing to be controlled; and, second, in that it goes far to clear up the mystery as to the source of the very numerous cases of infectious disease that could previously be traced to no source, and that could be explained only by a hypothetical distant atmospheric transmission or some such mysterious means. These cases have carried home to us, as nothing else has done before, the importance of contact infection in a multitude of diseases. A quiet sneaking sort of contact infection it is when the person carrying the infection is apparently well, but direct contagion it is, nevertheless.

Such observations are an old and familiar story with diphtheria now. I have myself seen five localized outbreaks of diphtheria in the past four years in which the infection was clearly demonstrated to have been spread about by supposedly healthy or supposedly long convalescent persons, who were actually carrying virulent bacilli. Unquestionably this is an enormously important thing in diphtheria and is the method by which many transmissions of this disease occur. We are likewise familiar with those unfortunates who go about, sometimes even for years, leaving a trail of typhoid fever behind them; and we are approaching the point at which it would appear that pneumonia propagates itself largely in this secretive way. Most persons, in ordinary circumstances, are resistant to the pneumococci that they carry themselves or meet in others, but when in a state of lowered resistance, if they happen to

be carrying a virulent strain themselves or come into contact with some one who has such a strain, they fall ill with a pneumococcic infection which may become an actual pneumonia. Thus, the striking fact that most human beings carry pneumococci about with them is no longer a mere curious phenomenon that would seem to lessen the importance of this organism in that disease. On the contrary, when properly comprehended, it becomes a more grave and significant fact than ever before.

With meningococcus meningitis the circumstances appear to be very similar. Observations such as those of Elser and others in this country, and of Ostermann in Europe, make it appear highly probable that the odd way in which this disease spreads is explained: that most persons who are exposed are not susceptible, but that many of them carry the cocci for some time afterward. While only a few sicken in evident relation to other cases, the spread of the disease appears to be usually through contagion, nevertheless; for the cocci may be passed on from one to another, without any one of them knowing this, until finally a susceptible person falls ill. By this time the relation to the original case may be wholly obscure. Any one who, with our present knowledge, does not isolate this horrible disease is dangerously indifferent or dangerously conservative.

A study of those who have unconsciously acted as infection carriers has already marvelously illuminated the whole question of infection and will light up this question still further. Midway between this source of infection and contact with persons who are evidently sick with a recognized disease lie a group of cases that also are growing increasingly numerous and increasingly important, as we come more and more to the point of making our diagnoses in infectious conditions on bacteriologic grounds, rather than on the situation and the character of the symptoms and physical signs—those cases, I mean, in which there is evidently an illness but in which there is not what we have been accustomed to depend on as the clinical picture of a particular infection; cases, however, in which bacteriologic study shows that there is actually a disease which is known to be readily transmissible. These cases are recognized to be highly numerous at present. We are now familiar with the running cars that may spread diphtheria widely, with the fact that an ordinary "cold" due to a virulent strain of pneumococcus occasionally gives someone else a pneumonia, and with many similar occurrences—all pointing toward contact with the sick as a profoundly important source of infection.

All this, brought down to its essence, means that the infected human being is coming daily to occupy a more and more important position, and is approaching a position of supreme importance as the source of infection in others. Even in diseases such as typhoid fever, in which a large proportion of the infections occur through water or milk, this takes place, not because there is some essential dependence of the disease on water or milk, but because these fluids have recently been infected through the imperfect care of a human case, or in a relatively small number of diseases it occurs through infection of these fluids through a case of one of these diseases in animals. The importance of distant infection through the atmosphere or through fomites, rubbish and the like grows correspondingly less as contact grows in importance, though the influence of bad air, dirt and many other such things in reducing resistance to disease remains great. These latter things are, of course, sometimes of direct importance in producing infection, since

some pathogenic bacteria can maintain their existence and their virulence outside the animal body for a long time, and most of them can do this for a short time; but the greater proportion of them probably can not do it very long, and hence they are dependent for their continued existence as disease-producers on continued infection of animals; and with human bacterial diseases this usually means that they are dependent chiefly on continued infection of human beings.

All this comes back to the practitioner in its loud insistence on the greatest possible care with the infected sick, if infections are to be stopped at their fountain-heads. But in this maze of infections among which we live what is the practitioner to do and what is he to teach? There are many ways in which we are as yet helpless, or somewhat helpless at least. Nevertheless, I think that the thing that we need first of all is to get more thoroughly rid of the centuries-old feeling that these diseases are purely chastisements of Providence and must be borne with resignation, and some of us need this riddance badly. The general trend of the recent investigations that I have sketched, and especially the demonstration of the existence of a large group of infection carriers who are not suspected to be such, unless chance or a somewhat laborious investigation proves it, has, with those of little courage, intensified the feeling of sorrowful resignation. These cases do, indeed, make it appear profoundly true that in the midst of life we are in death; and that with chronic infection carriers particularly we have ordinarily no means of recognizing the danger and, therefore, no means of preventing it—at least when these persons have already become infected—until some unfortunate event directs attention to them. The knowledge of their existence, however, is further evidence of our powers, rather than a source of discouragement, if we direct our efforts properly; and they force our attention more strongly toward the first point in the management of infections, namely, that with any serious infectious disease, and not only with those long known to be contagious, some degree of isolation should be earnestly recommended, and this should be made as complete as is reasonably possible. This will meet with a good deal of opposition, but it is already perfectly feasible with a large proportion of the intelligent public, and every advance that was ever made has met with opposition. With the milder infections, even with acute colds, isolation should be encouraged as much as can be done.

The principal way in which this can be accomplished is, as I have already indicated, in making the laity comprehend the reasons for it, and, as I have just said, a considerable proportion of the intelligent laity already comprehend them fairly well. Isolation may, of course, be modified according to the disease and according to the manner and the readiness of its transmission; but the chief point is to educate the people into the feeling that those sick with any acute infection should be promptly, and as completely as possible, restricted from any unnecessary contact with others. To many persons this seems an extreme proposition, but its rationality needs no argument. To many others it seems impossible that it should do much good, when so many opportunities for infection must inevitably remain open; when many patients and their families will refuse to carry out any sort of isolation; and when someone must always care for the sick, any way. The proper way to look at the matter, however, it appears to me, is to consider each person exposed as possibly starting an endless chain of

infection, the number of links in the chain being possibly doubled, trebled or quadrupled each time it is passed on. We are all familiar with the figures to which such a progression soon mounts. If we restrict intercourse with the sick, we reduce the chances of the starting of such endless chains from five or ten, or more, down to one or two. I have no doubt that, in the apparently narrow sphere of their daily work, a few practitioners can thereby often do as much to prevent disease as a city health officer can usually do in dealing with a whole city; because of the peculiar opportunity in practice to stop the infection before it takes the first critically important step. Much infection must still go on, even if all practitioners make the best efforts possible; but with careful and widespread use of the measures that we have at our command, we can unquestionably reduce greatly the number of cases, and it is only in our dreams that we have thought that infectious diseases would soon be actually stamped out.

In connection, especially with the highly contagious diseases, but also in connection with all serious infections, we need particularly to get rid of the point of view that leads practitioners very commonly to permit a number of persons to have intercourse with the sick, after having explained to them the greater or lesser chances that they may get the disease themselves or may carry it to others. This is practically, with many persons, daring them to face the disease, if they have the courage; and since, in a large proportion of instances, they learn that the chances that they will get the disease themselves, if they are in good health, or have had it before, are small, they very often do have the courage. It is not the province of the laity to decide whether they should do these things. It is the physician's responsibility; and quiet, tactful, but serious advice should be given against any unnecessary contact with any infection, more especially the acute infections. People should be plainly told that, with our present knowledge, we must consider that there is not only more or less danger to themselves, but also that, while the danger to themselves is in most instances slight, the old discussion as to whether this disease or that can be carried from the sick to a third person through an intermediary has been pretty well answered in the affirmative for all the acute infections in which we have any real knowledge of this question. People must be made to realize that unnecessary exposure to any infection is a wrong to the public. It is not a question that affects themselves or their families alone; the question is whether they will help in whatever way they can to lessen the danger from these diseases to the whole public with which they come into contact.

It will again be objected that only the very intelligent will comprehend this; and that only the altruistic will accept this point of view, if they see it. I would again say that the numbers of the intelligent increase with the spread of knowledge, and that the numbers of the altruistic increase by example; and at least many persons adopt altruistic manners and methods through the force of example, even if they do not really enjoy altruism.

The next general principle of which I wish to speak as exemplifying what we should practice and preach is that we should take earnest care to acquaint those who come into contact with the sick, especially those who must be in attendance on them, with the particularly important ways in which they may acquire the especial disease at hand or may pass it on to others; and we

should take vigilant care to see that they follow suggestions correctly and conscientiously. The latter is done less frequently than the former. Preventive suggestions are often given; but their effectiveness is a question of accuracy in detail, and anyone who takes the trouble to see in what manner the previously uninstructed carry out these measures after mere verbal instruction or hasty demonstration must appreciate the importance of taking some pains to see that things are done correctly. Even with trained hospital staffs, eternal vigilance is necessary in order to accomplish anything approaching accuracy in these matters; and with those who have previously had neither knowledge nor experience, some hasty directions, once given, will certainly do little good. Unfortunately, even the latter are not given with one-half the regularity that they should be. There seems, even yet, to be vastly less confidence in the value of prevention than in the treatment of the existing disease—in spite of the fact that everyone realizes that we have the power of saving many more lives through the former than through the latter.

As an illustration of the common laxity in this, I may mention that I went carefully into the histories of a large group of hospital cases of typhoid fever, and could not find that in 10 per cent. of them had any definite precautions been taken or suggested, in order to protect the other members of the household; and as a consequence I myself saw among this group of patients, in the course of two years, twelve instances in which from three to five members of families acquired typhoid fever, and almost certainly from the primary cases in their houses.

Only a few days ago I met with another example, when I found a small country community, ordinarily free from typhoid fever, greatly excited over the occurrence of five cases of this disease in one family. There were many speculations as to the source, but the trail of the serpent was plain in this instance. A son had come home sick with typhoid fever from a town constantly infected with that disease. The whole family had assisted at times in nursing him, and even the cook had hovered between the patient and the food that was eaten by the whole family. No instruction had been given at first as to the prevention of the spread of the infection; and the physician in attendance admitted that when the second case occurred and he realized that he was responsible, he deliberately said almost nothing about taking precautions, because he felt that insistence on regulations at that juncture would lead to his being blamed for not having established them earlier. The recording angel has against him, in this instance, one death, many months of illness *in toto* in that family, and very heavy expense to the survivors. This cheerful story is far from representing the great bulk of the profession; but it and the other instances mentioned do show that a great deal more care should be given to detailed instruction regarding preventive measures.

IMPORTANCE OF PERSONAL PRECAUTIONS BY PHYSICIANS

Finally, we need to have more faith than many of us have in the real usefulness—the actual necessity, indeed—of adopting with our own persons all the reasonable precautions available against being ourselves carriers of infection. Many physicians seem to think it embarrassing to adopt precautions, and apparently consider that it will make the laity look on them as lacking in courage and fearful of acquiring the disease themselves. It is not courage, but foolhardiness,

to expose oneself needlessly to disease; but any who prefer to be foolhardy, may still put a check on themselves by reflecting that these precautions are really less for the physician's own good than for that of the public. A large number of medical men consider these precautions an unnecessary burden, because they can see little evidence that they or others who take but little precaution ever carry disease. This argument can not hold good at the present day. Which one of these men can say, in the light of our present knowledge of chronic infection-carriers, that he has not unconsciously played this rôle himself many times, and perhaps with gravely important results? We are approaching more closely every day to the position of the surgeon and the obstetrician, who are held—and who hold themselves—responsible, if they infect a patient through neglecting to avoid not only what they can clearly see is dangerous, but also what their reason tells them may be dangerous; and who make every effort to eliminate the inconspicuous and comparatively slight sources of infection. These men have had an advantage over medical practitioners in making progress in these matters, because their bad results openly and quickly follow the cause in most instances. Our errors are much more difficult to see and to overcome, because the bad results are somewhat more difficult to prove and even to suspect. Their existence and their importance, however, have now become beyond reasonable question.

One other highly important reason that the practitioner should exercise great care in the protection of his person against infection, in disinfecting exposed parts, and in all such measures, is that he serves as the chief example that the laity have to follow; and if he evidently regards these things as of too little moment to make it worth while to practice them himself, we can not expect the laity to have much faith in the things we teach them and desire them to practice.

The standpoint that I have described is one that requires more time and effort from the practitioner than does the ordinary method of dealing with infection. Nothing that is worth doing, however, can be done without effort. I am convinced that this is the way that those who wish to be in the vanguard must look on the matter, and I am equally sure that it will not be long before the intelligent public will be learning these things pretty generally, as they have already learned the important facts regarding tuberculosis and its prevention and treatment. They will then require of us in other diseases the same advanced attitude that they now know that skillful practitioners should have in tuberculosis. All this must add somewhat to the time and care devoted to infectious cases. I am fully aware that it means some extra tax on the practitioner's strength and patience, but I have touched on some of the matters that I have included, rather than leave them to one of the speakers announced to follow me, to whom they may in some ways seem more properly to belong, because if I preach, I am at least preaching what I myself have to practice, whereas if they alone say these things they might in their positions seem to be preaching only what they would have others practice.

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Gonococcus in Puerperal Fever.—F. B. Gurd, in *Montreal Medical Journal*, states that the gonococcus, either alone or as a primary infecting agent, plays a much more important rôle in the production of puerperal fever than is usually appreciated by most observers.

THE AMOUNT OF INFECTION AND REASONABLE SANITARY STANDARDS*

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It is not generally appreciated that it requires a certain amount of infection to induce disease. While an acute specific disease is the result of a reaction between two living organisms, the host and the parasite, nevertheless, in the vast majority of instances, it requires a certain amount of the infecting principle on the one hand and a certain degree of susceptibility on the other hand, to produce the fever and other constitutional disturbances we call "the disease."

These two factors are more constant than is commonly supposed. All individuals of a given species usually have about the same susceptibility to a particular infection. Exceptional individuals may occasionally show wide variations, some being especially susceptible, others unusually resistant. These exceptions are rare enough and conspicuous enough to emphasize the rule. Thus, almost all persons are about equally susceptible to smallpox, whooping cough, measles, tetanus, mumps, dengue, yellow fever, plague, scarlet fever, and most of the acute specific diseases, provided certain amounts of the infectious principle are actually introduced into the organism, and provided, of course, that they have not had a prior attack, nor been treated by special means to raise their immunity, etc.

It is wonderful how uniformly the lower animals used for experimental purposes in the laboratory react to bacterial poisons. A given amount of tetanus or diphtheria toxins injected into guinea-pigs is followed by such constant results that these animals are a reliable and satisfactory measure of the strength and concentration of these poisons. So constantly and uniformly do the guinea-pigs react in this regard that they serve the purpose of an accurate analytical balance to measure the potency of these toxins and their antibodies.

Animals show also uniform susceptibility when inoculated with the living cultures. Thus, a twenty-four-hour-old culture of plague, glanders, anthrax, streptococcus, etc., may be depended on to produce surprisingly constant and uniform results when injected in definite quantities and under similar conditions into individuals of the same species.

On the other hand, it is well known in every bacteriological laboratory that, no matter how virulent the culture and no matter how susceptible the host, there must be a certain number of micro-organisms present to obtain a positive result. It has been estimated that it requires at least thirty tubercle bacilli in the peritoneal cavity of the guinea-pig to produce tuberculosis. Although many animals are very susceptible to plague, it requires a definite number of plague bacilli to produce the disease. The same is true of diphtheria, tetanus, anthrax, glanders, streptococci and other micro-organisms that are usually classed among the most virulent of the infections. It is especially true of the pyogenic cocci and the pathogenic group of coccobacilli.

On account of the power of bacteria to grow and multiply within the body, the initial amount introduced

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necessary to bring about the disease can not be weighed and measured in the same sense that the lethal dose of chemical poisons can be determined. While no hard and fast rules can be laid down, it is evident to those who have had experience in this line of experimental work that very susceptible animals may successfully take care of small amounts of infection.

The same constancy does not hold good for all channels of infection. There is probably a wide variation in the amount of the infection necessary to produce disease, when the active principle is taken into the gastrointestinal tract. Here many conflicting and complicating factors are introduced. Even here there is reason to believe that with such diseases as cholera and typhoid, it is the amount as well as the virulence of the infection that plays an important rôle. There is experimental evidence which teaches us that the ingestion of small amounts of tubercle bacilli by guinea-pigs appears harmless, whereas the ingestion of large amounts of the same culture causes generalized tuberculosis. When, however, micro-organisms are introduced directly into the tissues by any of the various methods commonly used in research work, we find consistent and unvarying results directly proportional to the amount of infection introduced.

Many factors influence the degree of infection, that is, the mildness or severity of a disease. This problem does not at present concern us, for we are now dealing with the fact whether an organism "takes" the disease after "exposure," that is, after the introduction of the virus into the tissues.

General principles teach the lesson that the occasional introduction of amounts of infection too small to induce disease serves a useful purpose by increasing resistance. All our notions of the production of antitoxins and of acquired active immunity are based on the repeated introduction of subminimal lethal doses of the specific virus into the organism. The higher degrees of immunity are induced by living bacteria; lesser degrees are produced by dead bacteria and by their products. There is, therefore, reason to believe that the chance introduction of a few pathogenic bacteria, which contaminate our food and drink, may serve a useful purpose in strengthening our resistance.

So much for the facts. The lesson to be drawn from them is evident. It is not possible, perhaps not always desirable, that our sanitary standards shall in practice reach the plane of laboratory perfection. In our ordinary walks of life we can not surround ourselves with the ideal aseptics reached in the surgical clinic. We must satisfy ourselves with reasonable cleanliness. For drinking purposes we do not need chemically pure water, sterile as that which has been thrice boiled in the test-tube. We do not demand germ-free milk. We ask only clean, fresh, non-infected milk. There must be a similar compromise between chemical and bacteriologic ideals and reasonable standards applying to our every-day food and drink. We know that a plant raised with great care in the greenhouse can not withstand the adverse conditions met by wild stock. It may be necessary for similar reasons to avoid raising a race of "hothouse" men and women. Dispersion and attenuation are the great natural forces which dilute and finally destroy infection. From a practical standpoint these agencies are useful adjuncts and should be reckoned with by the sanitarian, especially in establishing sanitary standards.

Applying these thoughts to a few individual cases, we find that time and experience have demonstrated the efficiency of slow sand filtration for polluted surface waters. While the effluent is not perfect or ideal, it furnishes a reasonably safe and clean water, and the method has been shown by long experience to be useful and trustworthy.

The milk supply of all large cities is a frequent vehicle of infection. By education, inspection and legal control we can improve the quality of this important but often dangerous article of diet. One safeguard, for the time being, however, lies in pasteurization. Pasteurization is not the ideal, but gives us a protection and must, therefore, be considered a reasonable standard.

With certain drugs and foods there can be no compromise; every known safeguard must be employed. Thus, antitoxic serum must be absolutely sterile and free from all contaminations. Vaccine virus must always be free from pathogenic micro-organisms, though it need not necessarily be "aseptic." Organo-therapeutic products and powerful active principles must be as pure and perfect as science knows how to make them. Drugs and chemicals should attain at least to pharmacopœial standards of potency and purity.

We shall always strive to attain perfection, but there is no reason why we should knowingly permit our fellow men to suffer by refusing to avail ourselves of the protection of reasonable, though imperfect, sanitary standards, even though they are not the end and aim of the future.

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ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. EDSALL AND ROSENAU

DR. D. H. BERGEY, Philadelphia: Direct contact in the sick-room, while it is not the factor which leads to the production of widespread epidemics, is, nevertheless, a very important factor in the dissemination of diseases like typhoid fever, dysentery, pneumonia, meningitis, influenza and so on. We can limit this form of dissemination by educational means. The young recent graduate should fully understand his responsibility and disseminate his knowledge to his clientele. We probably have, in the past, either from lack of knowledge or from carelessness, neglected important steps that would have prevented the dissemination of the infectious agents. Provided we were always able to recognize all cases of communicable disease we should be able to control such disease. Unfortunately we encounter atypical cases far more frequently than typical cases. Certain well persons, the so-called carriers of disease, harbor the virulent organisms, and these, because we have not yet learned to recognize them, are probably of greater detriment to the community than are neglected fully developed cases. The work which has been accomplished in the English and German armies in regard to protection against typhoid fever, the protective value of the Haffkin fluids against cholera and against plague, lead us to hope that perhaps to some extent we may use similar measures to limit other infectious diseases. Dr. Rosenau has emphasized the fact that in infection we see the relation of the seed and soil, and while this is true under normal conditions it can not be true with regard to the human individual at all times or else we should see infection occurring far less frequently than it does. We are not all in the condition of the normal laboratory experimental animal. Our vitality is reduced from various causes and it may be that, instead of thirty organisms required to produce infection, all we may need is a single organism. For that reason the base of his argument will fall to a large extent. In regard to the obtaining of pure milk and pure water, we should rely on education in the principles enunciated by Dr. Edsall rather than the employment of the safeguards that Dr. Rosenau seemed to emphasize. For instance, to my mind it is far more desirable to produce a milk that is clean and free from disease.

producing bacteria than to safeguard the public health by the pasteurization of milk. If we can eradicate other diseases as we have eradicated malaria and yellow fever, through hygienic measures which have been discovered, we shall not, as Dr. Rosenau feared, raise up a generation of hothouse individuals, but a race of individuals that we can protect and keep protected by eradicating the cause of these diseases. Finally, if we can so educate the laity and the profession that they will realize the importance of their duty with regard to diseases; so that they will realize that it is the atypical condition that needs more active control; that as long as an individual carries an infectious organism he is a danger to the community, no matter how long we may keep him in isolation; when we reach that point, then we can limit the incidence of communicable diseases.

DR. J. N. HURTY, Indianapolis, Ind.: At present I despair of doing anything through education with the older people. In my experience as Health Commissioner of Indiana I have spent a great deal of time meeting county commissioners and the controlling authorities of towns and of cities. I have failed to make much impression on them. Their minds are filled with something else than the protection of the public health, and some of them even inquire, "What is there in it for this man that he should give up his time and his efforts to protect our health?" Hence I believe that the only place really to educate the people in the protection of public and individual health is in the schools. All the labor that I have expended with the local governmental authorities has been wasted. In one of our counties a great deal of malaria prevailed. It was not surprising to find that the county contained many little lakes and ponds. On examining the mosquitoes we found anopheles present. That they were infected to some degree was certain. We appeared before the county commissioners, who, by the way, in our state are generally farmers, and told them that the malaria resulted from the presence of mosquitoes. I thought that a good impression had been made. These men had listened attentively; they looked from one to the other, and the chairman combed his head and said: "Now do you believe all that stuff?" After all our efforts they put their opinion and conceit and ignorance against the scientists who had investigated the whole matter to the bottom. We can secure change only by educating the children. Go into the schoolroom and tell the same story to the children; tell them what malaria is and what it has done, how it acts, why it was not possible to build the Panama Canal without abolishing malaria, yellow fever, etc. Then, when these children grow up and have command, something will be done. It seems to me that a great deal of disease is acquired in school. The mental and physical man must be made in youth and not afterward. Hence the building of schoolhouses that impose ill health on children is very unpractical, irrational and extravagant. Yet that is going on everywhere. When children whose eyes have been injured by the bad lighting of the schoolroom, or whose spines have been twisted by bad seats, are exhibited to an assembly of older people, the latter are not impressed, and if advised to build sanitary schoolhouses in the name of economy and good business, will probably say at once: "Our taxes are high enough already." So I am driven to the conclusion that unless we can get hygiene taught in the schools, that science will make no progress.

While it is true that when resistance is very low, perhaps one infectious organism may suffice to produce disease, still if we live rationally that condition will rarely happen. I therefore believe that we can rely on the fact that, as Dr. Rosenau has said, a certain number of infecting bacteria are required in order to produce disease. This opens a splendid field; it points to what might be called the new hygiene.

DR. JOSEPH H. WHITE, New Orleans: I think that education possibly does more good to the general public than my friend Dr. Hurty thinks. I know that you have to reach the children. In our New Orleans campaign of education, when we wanted every one to understand how yellow fever was propagated, we talked repeatedly to the children in the public schools. We employed for that work some of the best ministers of the city, men who were accustomed to talk to children and who knew how to handle children better than we did. We accomplished

an enormous amount of lasting good by this education. You can and must appeal to the adult's pocketbook in every emergency in which diseases is to be fought. There is a logical way to show to the adult population of the community that disease means financial loss, as it invariably, inevitably does. Every man, even the hayseed Dr. Hurty tells us of, though he may not have sense enough to take in sanitary science, has the sense to take in financial loss. Dr. Rosenau's statement that a certain amount of infection was necessary to the propagation of disease is undoubtedly true. It has certainly been borne out in my experience with disease. Otherwise, how would it be possible with the imperfect work to obtain results? None of us are capable of absolutely perfect work, and yet with work done within 75 per cent. to 90 per cent. of perfection you will get the results you seek. All of us have seen direct exposure to contagious diseases without result. What can that mean but what Dr. Rosenau has stated, that it takes a certain percentage of infective material to generate the disease, and that one micro-organism alone does not necessarily propagate disease? His paper is of vast encouragement, it seems to me, to sanitarians in their fight against disease in assuring them they have not an absolute certainty of infection in every place where the organism has been, but that there is some chance of escape, some weakening of the enemy's lines. Otherwise the fight would be hopeless throughout.

DR. H. M. BRACKEN, Minneapolis: Contact infection, so far as it relates to typhoid fever especially, is largely overlooked. The history of the family one member of which came home ill with the disease and the other members became infected through the neglect of the attending physician, is far too common. Country typhoid fever is largely made up of contact cases, and the sooner this is generally recognized by the laity as well as by the profession the better it will be for all concerned. As to secondary or indirect infection, I think we have probably emphasized this too much in the past. We should place emphasis on the fact that we are to avoid the possibility of such infection rather than to attempt to confine such infection by quarantine. We should teach people how the infection is transmitted and thus prevent their carrying the disease to others. There are two methods used in the effort to educate the public along sanitary lines; one by talks, which do not accomplish much, and the other by practical demonstrations. I do not know how this educational work can be carried on better than by school inspection. If you try to teach a child how infection takes place your efforts may prove of little avail, for the child forgets. If the child is constantly seeing methods employed in school inspection he soon learns that certain diseases are supposed to be transmitted in certain ways, and when he grows up he remembers these things. I look for the time to come when school inspection will be recognized as of more importance in the control of infectious disease than quarantine.

DR. SAMUEL MCC. HAMILL, Philadelphia: The present status of the milk question makes the encouragement of commercial pasteurization questionable; first, because the methods used are wholly unreliable, and, second, because it tends to discourage the rapidly spreading demand for clean milk which has resulted from educating the public. Unfortunately, in the present condition of the market milks we are forced to recommend some form of pasteurization. I am inclined to believe that by the home pasteurization of milk we shall accomplish as much for the protection of the public and do less harm to the clean milk cause than by pasteurization by the present commercial methods. It seems to me that as long as the practitioners of medicine and the departments of health are antagonistic to each other we shall accomplish very little. I happen to come from a city in which such conditions exist. The result is that we accomplish nothing of value. There is no cooperation. The recommendations of the Board of Health encounter antagonism on the part of the medical men and conversely everything proposed by the medical men is antagonized by the Board of Health. Both sides are at fault, but at present I think that the greater blame rests on the members of the profession. Physicians should adopt measures to prevent the transmission of disease through the medium of their own persons. Even now there are many who scoff at the

use of a gown. It is not a matter of much difficulty to provide oneself with and wear protecting uniforms, and I can assure any man that he will gain and not lose in the respect in which the public will hold him and that he will be able to go from case to case with a much clearer conscience.

DR. S. T. ARMSTRONG, New York: Like the last speaker, I question Dr. Rosenau's position on pasteurization. New York City has had an active campaign in favor of pasteurization by certain well-intentioned private individuals, who were able to bring to their aid important advertising interests that made the daily press exploit the subject. The Board of Health has felt that pasteurization would limit and neutralize the work it was doing in the inauguration of proper cleanliness of dairies, so that pasteurization would become a detail for the consumer rather than the purveyor. In the hospitals with which I am connected in New York City I find it possible to secure very good milk by paying for it; it is simply a question of dollars and cents. At the present time the dairymen can not give clean potable milk for the price they receive from the purveyors. If milk with a low bacteria content is to be supplied, methods must be used in the dairy that will necessarily increase production cost; if cleanliness in barns, in cattle, in sterilization of utensils, in uniforms for employees, is demanded more must be paid for the milk. In the public institutions of New York City, to secure milk that will contain a bacterial content of less than 100,000 colonies during May, June, July and August, and less than 60,000 colonies during the other months of the year, we pay 6¼ cents for the summer and fall months and 7 cents during the late fall, winter and first spring months. Hospital officials have told me that if they had to pay such a price for milk it would increase the cost of supplies to the institution by many thousands of dollars a year. They were told that this was undoubtedly true; that they were giving their patients a culture of bacteria while I was trying to give them a food. The municipality should try to get for its citizens a food supply. Our best bacteriologists have informed us that pasteurization improves the milk only temporarily, and that shortly after that process it is a better medium than before; while pediatricists advise us that the nutritive value of such milk is lessened. The weight of evidence among those best qualified to speak is that commercial pasteurization does not meet the situation, and is not a prophylactic measure to restrict communicable diseases. Even in a hospital a member of the house staff will find a case of diphtheria developing in his ward, report it to the board of health, have the patient removed, and do nothing towards the immunization of patients in the vicinity of the one affected, and nothing for the nurse. It was necessary in the municipal hospitals of New York to rule that on the development of a case of diphtheria in a ward all patients and persons exposed were to be immunized by a protective inoculation of diphtheria serum. Hospital administration has a problem that confronts the general practitioner in a patient who has no clinical symptom of diphtheria, although the diphtheria organism is present. The board of health has no special interest in such cases, as, obviously, there is not sufficient accommodation in hospitals for communicable diseases to provide for the patients. The hospital must meet the condition, as far as the individual is concerned, by immunization. The patient should be separated from others in the vicinity by screens. As far as measles and scarlet fever are concerned, though we can not immunize for these, it is hoped that some measures will develop in the future that will afford protection. Whooping cough and chicken-pox are not regarded by the New York Board of Health as diseases to be cared for in hospitals for contagious diseases; consequently, provision must be made for such patients in general hospitals where there must be isolation rooms, as such an institution can take no chance in the matter, whatever be the attitude of the board of health. A physician in private practice would have to follow similar measures. Our tuberculosis patients are all isolated in wards for that disease alone. We have not isolated typhoid fever patients, although the matter has been under advisement.

DR. SENECA EGBERT, Philadelphia, Pa.: I am heartily in accord with what Dr. Hurty and Dr. White have said in regard to the adult. We can appeal directly to the adult, and, as Dr.

White has indicated, especially through the pocketbook. I was startled the other day by some figures I saw in the mortality statistics of the U. S. Census Bureau for 1906. In the year mentioned we had over one thousand deaths from typhoid in our city, a death rate of about 70 to 100,000, three times as much as any city with a decent water supply should have, and this in spite of the fact that there is now a good water supply to certain sections of the city with a consequently lower mortality rate from typhoid fever in those sections. The bad water and other agencies causing typhoid practically means a death loss of \$5,000,000 and over, an amount that will probably more than pay the interest and maintenance of the new filtering system now being constructed. When we can show to people the immense loss incident to preventable illness and death we shall get results in a sanitary achievement. I do not believe that you can make Butler, Pa., believe now that it is worth while to spend \$200,000 for another typhoid epidemic. So far as altruism is concerned, it is not going to cut much figure with the ordinary adult, but if you make him see he is taxed more and that the annual expenses brought on him are increased by these epidemic diseases, he will give some thought to their causes and prevention. We must do a great part of our education in the school. I have remarked before to this Section that the census of 1900 shows that 30 per cent. of the population of this country is under fourteen years of age and almost 50 per cent. under twenty-four. That means that within ten years we can teach directly 50 per cent. of the population. Another ten years gives us 70 per cent. There is an opportunity to do as Dr. White has done in New Orleans, teach the children by word of mouth, by pictures, books and by practical experimental work in the study of the mosquito and the fly, etc. It is easy to catch a common house-fly, to have it walk over a dish of sterilized culture medium and to show two or three days afterward the tracks which the fly made and what they may indicate. A certain amount of the curriculum and of time should be devoted to this kind of training. School children are learning botany and zoology now in the schools. It would be just as easy to have them take up the study of prevention of disease. I believe the daily influence of school inspection by the medical examiner also has a tremendous influence in an educational way, and I venture to say that in Philadelphia there are many school children who are coming under the visitation of the school inspector and the visiting nurse who already know more about hygiene and sanitation than their parents know or ever will know. If we make people appreciate that, although it is practically impossible with a consumptive in the house, for instance, to get absolute disinfection, a relative and practical safety from infection can be achieved, I think it will encourage people. They read and constantly hear that many millions of bacteria are cast off by the consumptive in the day, so that it would seem a hopeless task to attempt to protect themselves against infection. If they realize that it takes a good many bacteria to infect them, as it does, they will have some hope of carrying on the work of disinfection. Every physician should have an abundant supply of circulars on infectious diseases at hand, and when he gets a case he should give a circular to the patient, for this tells him more than the average physician has time to tell him by word of mouth. If that can not be done in every state the physician should have a little slip with instructions regarding the case of infectious diseases and with instructions regarding general disinfection. The whole thing is so easy and practical that it is a wonder that it has not been more thoroughly and extensively practiced by the doctors than it has been. I think that preaching this question of prophylaxis, day in and out, in season and out, will eventually make the public realize the enormous economic loss due to preventable diseases.

DR. HELEN C. PUTNAM, Providence, R. I.: I have been in a number of cities recently visiting more than a hundred public schools where they have medical inspection. Medical inspection is on its trial both with physicians who are watching for results and with teachers who are watching with hope and with some criticism. Within six months I have been in a city where the medical inspector, when he wanted to examine a child's throat drew his pencil out of his pocket to depress the tongue,

and when he examined another throat used the same pencil for the same purpose. I was in another school when a medical inspector wanted to see the condition of adenoids. He examined lightly with the finger on the back of the throat, wiped his finger on his handkerchief and within half an hour examined another throat with the finger, not having washed it meanwhile. Some teachers are sufficiently alive to hygiene to speak of this and of other unfortunate occurrences. This kind of medical inspection is doing harm. This bad work means a great deal, and it is the function of this organization to consider training of medical inspectors. We need, perhaps, training individual physicians in the matter of conscience; but we need very greatly the degree of Doctor of Public Health which shall be given for the satisfactory completion of a course including proper training in the inspection of schools.

DR. ALEXANDER S. VON MANSFELDE, Ashland, Neb.: A lesson was taught me on the second day that I was the first health officer of the city of Lincoln, Neb. On the first day I quarantined a man for smallpox and on the second day the man was on the principal street of the town exhibiting himself. I solved the question in this fashion: "You are a deputy sheriff of the county, I believe." "I am." "It is my opinion, sir, that the first lesson an officer should learn is to know how to obey the law himself. When you go home there will be a man with a shotgun watching your door and when you leave it in spite of that shotgun you and your physician will have plenty of time during your lifetime to pick the shot out of your skin and you will have learned well, sir, the lesson which I wish to inculcate in you." He went home and stayed there, you may be sure. I had no more trouble. There is an abundance of instruction on the care of contagious and infectious diseases. What we lack is the execution. I think that medical men should be examined for health officers not as to their brain capacity alone but as to the strength of their backbone. I fully believe in instruction of children in the schools; but how are we taking care of them? How are we as health officers looking out for the coming generation? Don't you know that over this great country of yours measles and whooping cough are not quarantined? Who on this floor but knows that the best breeding-ground for the flora of tuberculosis is the hotbed prepared by whooping cough and measles? You are sowing the seed broadcast, so that your followers in medicine will have a plentiful crop of tuberculosis to take care of as we have now. Why do you do it, I ask you? I have just passed in my city through an epidemic of variola. The moment there is suspicion of any one having come in contact with variola, however remote, he is put into quarantine and he and his family are to be vaccinated. I do not know whether it is fortunate or not, but the people exposed are usually not very plentifully supplied with means. I say: "If you will not be vaccinated you must provide for yourselves. If you will be vaccinated the city will take care of you." It works like a charm every time. The authorities and the people of my city have a standing invitation to ask for my resignation when they will not permit me to teach these lessons. They have not asked me for my resignation the last thirty years.

DR. FERD. C. VALENTINE, New York: Before this learned assemblage it is unnecessary to emphasize the ravages of venereal diseases. All know that 80 per cent. of the women who die of diseases of the reproductive organs die of gonorrhea innocently contracted. Most infections are acquired from husbands who thought themselves cured before marriage. What are the prophylactics thus far offered? Principally education, prayer, periodical examination, suppression of prostitution and personal prophylaxis. Most men when infected with venereal diseases will deplore their ignorance of the dangers of immorality. At other times these dangers do not interest them. Were mankind differently constituted the work of the American Society of Sanitary and Moral Prophylaxis would have had great results. General education, however, does not always make men receptive to instruction on venereal diseases. That such instruction does not reach the educated and intellectual classes is evident in the consultant's waiting room. I would not on this account deprive them of the education. Its results from the nature of things can come only with persistent work after several generations. Prayer as a safeguard has been fer-

vently advocated by my friend, Howard A. Kelly, of Johns Hopkins University, as the only positive prophylactic. Relatively few, however, have the devotional trend, and but few of these are able to find in prayer a protection against the sexual impulse. The third means of prophylaxis that has been much advocated is in the periodical examination of prostitutes. It has proved a failure in the countries in which it has been practised for several centuries. Moreover, the practical benefits must ever be limited to the prostitutes, for certificates of sexual health tend to increase vice by the specious safeguard it pretends to give. Manifestly, it can not in any way exercise influence on the detriment disseminated by clandestine prostitutes. Suppression of prostitution by the strong arm of the law is likely to be even less effective than are the laws against murder and crimes generally. Personal prophylaxis would strike the majority of moral people as abetting lechery. On the other hand, an attempt to advise a man to use protective injections and washings must contend, among other things, with that peculiar mental bent which makes men averse to spending a penny for prevention and willing to spend dollars for cure. These facts, besides many others, which could be cited, do not justify abandoning the infractor of morals to his fate. To do so would be to abandon his wife and children, often to lives which are worse than death. Then arises the practitioner's best work, so to influence each of his patients that before considering marriage he will be in such condition as not to ruin in body and mind the health of the woman who entrusts herself, mentally and physically to him. The manner in which an examination to that end is to be conducted is the subject of a paper to be presented before this Section this afternoon.

DR. DENSLOW LEWIS, Chicago: I think it safe to say that one great means of prevention is the enforcement of publicity. Those who have followed up the work of the Section on Hygiene for several years past, those who have followed the trend of opinion regarding venereal prophylaxis, will remember that it is less than twenty years ago since the last speaker, Dr. F. C. Valentine, endeavored to refer to gonorrhea and was told: "This is a Christian country and a Christian association, and no such vile thing shall ever be brought before the Christian American Medical Association." At the Boston meeting, when I had the honor to serve as Chairman of the Section on Hygiene, Dr. Prince A. Morrow introduced a resolution to the effect that continence was not injurious to health. The resolution was referred to a committee which has now become the Board of Public Instruction on Medical Subjects. Last year, when serving as the delegate of the Section on Hygiene, I endeavored to get some action on Dr. Morrow's resolution, but it was finally tabled. In other words, the House of Delegates refused to go on record as saying that continence is not injurious to health. This being the case, I think that we should take some firm stand and assert that it is imperative to disseminate a knowledge of the truth. In view of the fact that the Board of Public Instruction on Medical Subjects now hesitates to consider gynecologic subjects and matters pertaining to sexual questions, because this board says in its report, submitted yesterday, that these can best be taken up through circular letters to physicians or by carefully prepared monographs by some first-class authority in the medical profession, it becomes necessary, it seems to me, to insist that every medical man should now come forward and advocate an immediate dissemination of the knowledge we possess. No first-class authority is needed to tell the truth about contagion. No hesitation is justifiable in withholding from the young a knowledge of the truth which may prevent disease and disgrace.

DR. S. A. KNORR, New York City: One of the preceding speakers prayed that the time might come when all individuals who carry pathogenic micro-organisms in them should be isolated. That would mean the isolation of a good many of us who have the pneumococcus normally or carry the grip bacillus at the time of a grip epidemic. I think it would be wise if that prayer would be limited for the time being so as to include typhoid fever and the more dangerous contagious diseases and not all communicable diseases. Of course, the compulsory hospitalization of cases of measles would be the ideal, but in some communities at epidemic times it would

mean a good deal of expense or hardship for the time being. I have had a little experience in educating the public—children and adults—and while I agree heartily with Dr. Hurty on the importance of educating the children I believe also in educating the adult. In New York, thanks to the efforts of Dr. Herman M. Biggs, we have educated the people, and the result has been a reduction of the mortality of tuberculosis of well nigh 40 per cent. That means a good deal. We are also trying to educate the children; we are getting out a catechism on tuberculosis, and we try to educate teachers in the schools. A few practical things are not taught or not taught often enough, which should be mentioned again and again. Grip, tuberculosis and pneumonia, I firmly believe are propagated just as frequently through drop infection as by any other means. I mean by "drop infection" the expulsion of micro-organisms through the so-called "dry cough." There is no such thing as a "dry cough." A mirror held before the mouth will reveal that droplets are expelled during the cough. These droplets may contain the bacilli. So one of the first things to teach people who cough, no matter where, is always to hold the hand or handkerchief before the mouth. I am an enthusiast in all things pertaining to bacteriology, serums and vaccines, but we must still always pay attention to overcoming the physiologic poverty of our school children. Teach children to be clean, to breathe deeply often and to love fresh pure air. Tell them to teach this love for cleanliness and fresh air to their parents. I believe we should have no public school without shower baths and a swimming tank. It was my sad experience as attending physician to North Brothers Island to witness, on the day of the Slocum disaster, 400 little bodies taken from the water only a short distance from our island. Three-fourths of these children were drowned because they did not know how to swim. Is it not as important to teach swimming to our boys and girls in the public schools as to the pupils in high schools and colleges?

COL. WILLIAM C. GORGAS, Ancon, Canal Zone: My experience with transmissible diseases, principally in the last fifteen years, teaches me to look on the sick man as the great transmitter of diseases from place to place. We can see now that it would be impossible for fomites to play much part. My ideas on this subject have been much affected by the radical way in which my views have been changed with regard to malaria and yellow fever. Fifteen years ago there was nothing more certain than that yellow fever was a disease transmitted principally by fomites. I had been educated in that belief, and had worked under that idea. About this time other mosquito-borne diseases were being discussed. I was thrown a great deal with Dr. Finlay, who had been maintaining the theory that yellow fever was transmitted by the mosquito. He then defended his position entirely by argument, but by most ingenious and plausible arguments based on the facts then known connected with the disease. I think, in general, that men who have worked a great deal in health matters, have charge of quarantinable diseases and have been accustomed to executive work, are inclined to be intolerant and to look on the accepted view as the only possible thing. This was our case. Dr. Carter and I were for two or three years with Dr. Finlay on a board whose duties it was to see all cases of yellow fever reported in Havana. I am afraid that we were rather inclined to be short with Dr. Finlay and to treat his idea with scant respect. From our plane of superior knowledge we were much inclined to pull his theory to pieces in a very unmerciful manner. After seeing the experiments on human beings, however, I was obliged at once to accept the theory that yellow fever could be transmitted by the mosquito, and after that I was rapidly forced to believe that, in nature, it was transmitted only in this way. I then had, of course, to drop all belief in the possibility of its transmission through fomites. This radical change in belief naturally made a strong impression on me. As time has gone on I have endeavored to follow up this subject, and I now believe that yellow fever is transmitted only by a sick person going into a community and infecting mosquitoes locally. The only other way of transmitting the disease from place to place would be by carrying infected mosquitoes from one place to another. Infected mosquitoes can be brought from one place to another

in a test-tube, or a ship can get infected mosquitoes aboard at one port and carry them to another port, but I believe that actually this is very rare. This experience has affected my views with regard to malaria and other infectious diseases, and I am inclined now to look on the sick person as being the principal means of the transmission of these diseases and to believe that fomites play a very small part in the matter.

DR. DAVID L. EDSALL, Philadelphia: I am much surprised to hear Drs. Egbert and Hurty speak as they did. The education of children is an extremely valuable and important measure, but not a perfect method. One reason is that much of the teaching of physiology and hygiene in the public school is very silly. Teachers must be educated before they can teach children properly. In the second place, a child forgets later on much that he learned in school and needs reiterated instruction throughout his whole early adult life in order to keep him in the right way. I think that we can do a great deal with the adults. The health officers and hygienists are at a considerable disadvantage in dealing with adults, whereas the general practitioner deals with them personally and can accomplish a great deal with many persons, though not with the most ignorant and obstinate. Many can be reached through altruism. We should as far as possible prevent communication with typhoid patients in order to limit the number of infection carriers whom we can't get at.

DR. M. J. ROSENAU, Washington, D. C.: In no sense do I underestimate the importance of obeying the laws of health, of improving the bodily tone and strengthening the vital forces, which are among our chief allies in the battle against infection. Certainly, my conclusions can not be understood as a plea to disregard the aggressive measures which sanitarians must use in their fight against the communicable diseases, and by no means can they be misunderstood as an excuse for carelessness. I fully appreciate the great importance and value of educating the public in public health matters. These matters were not mentioned specifically in my short paper, but that does not mean that I think they should be neglected. I confined myself simply to one single thought, and that is that as a rule it requires a certain amount of infection to produce disease. Tuberculosis should not be taken as an example to illustrate this point, for the reason that the balance between tubercle infection and health is so delicately adjusted that a slight lowering of the vital forces is frequently sufficient to be the determining factor; but in a large majority of diseases, such as measles, smallpox, whooping cough, scarlet fever, yellow fever and many others, an individual may fall victim to the infection, no matter how great his bodily vigor may be, I simply endeavored to make plain certain facts well known in bacteriology. These facts explain certain phenomena frequently observed by sanitarians. The lesson to be drawn is that, by adopting reasonable sanitary standards, we can save life and prevent much sickness while we are waiting for the millennium. There can be no conflict between the admirable views set forth in Dr. Edsall's paper and what I have said in regard to the relation of the amount of infection to reasonable sanitary standards.

Clinical Notes

PRACTICAL MICROMETRY IN THE CLINICAL LABORATORY

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While the medical student of to-day is made thoroughly familiar with the appearance of every microscopic structure, animal, vegetable or mineral, which is of practical importance to him either from the standpoint of diagnosis or otherwise, he is apt to have very little capability to appreciate microscopic magnitudes. We train him to search for various organized structures and to discriminate between objects which are character-

istic of some diseased condition and unimportant objects, such as extraneous matter and artifacts, but we teach him very little of the size and nothing of the determination of the size of these microscopic structures. The result of this condition of affairs is seen in the case of objects which differ in size, but resemble each other to a certain extent in shape and general appearance. One is sometimes asked to confirm a diagnosis of *Strongyloides stercoralis* or some other intestinal parasite when the vegetable cells which have been mistaken for entozoan eggs are larger than any fluke-worm egg. Even an approximate determination of size would prevent such mistakes as this.

I have endeavored to devise a means of microscopic measurement which shall be simple, convenient, inexpensive and as accurate as is necessary for the present purpose, with the hope that it will be a definite help to the medical student in a direction in which aid is needed but is difficult to obtain.

The most accurate methods of micrometry, such as the photomicrographic method and the use of a screw micrometer eye-piece, are out of the question here, as is also the use of the camera lucida. The eye-piece micrometer with a fixed scale allows accurate measurements after being calibrated for the microscope, draw-tube reading, nose-piece and objective used, and ought to be a more popular accessory than it is at present. It could be supplied in medical schools along with the microscope which is furnished for the student's use, and would increase the amount invested in the outfit by only about 5 per cent. It does not need to be alternated with an ordinary eye-piece, but may be left permanently in the microscope, as the eye soon learns to ignore the scale when not in use as easily as it overlooks stray air-bubbles in the preparation examined.

A method which requires no additional attachments is the use of an ordinary graduated ruler laid on the table and viewed with one eye while the other observes the microscopic image. The two fields of vision are mentally superimposed, the ruler apparently lying across the image of the object. A scale with the different inches divided into sixths, eighths, tenths, twelfths, sixteenths and twentieths is said to be very convenient.¹ A previous calibration of the ruler by comparison with a stage micrometer, a microscopic scale of hundredths of a millimeter; or a knowledge of the magnifying power of the optical combination used is all that is necessary for making measurements. Aside from the difficulty in placing the ruler close enough to the optical axis of the microscope, however, many persons also find it difficult to keep the convergence of the eyes constant under such conditions, the result being that the two fields of vision shift laterally across each other in an irregular manner.

The method of micrometry which I propose consists essentially in the addition to the microscopic preparation of some insoluble substance which occurs in particles of comparatively uniform dimensions and of suitable size, a width of 25 to 50 microns being preferable for general use.

A large number of objects which suggest themselves for this purpose prove to be unsuitable when tried. Cotton fibers are always at hand, but vary too much in diameter. Starch grains are easily procured and by selecting the variety of starch any one of a considerable

range of sizes may be obtained. Unfortunately, the different grains of any given kind of starch show decided variations in diameter. Many objects, such as tapeworm eggs, are of very uniform size, but either are difficult to procure in sufficient quantities or are substances likely to be present in the microscopic preparations examined. A suitable substance must be one which can always be recognized as something extraneous. Yeast cells, lepidoptera scales, molds, diatoms, confervæ, etc., must be rejected for similar reasons.

Two substances which appear more promising are the pharmacopeial lupulin and lycopodium. Each has grains of about the right size, and a perfectly characteristic appearance which could not possibly be mistaken for anything else. Lupulin grains vary in both size and shape after being kept for some time, but the lycopodium grains do not seem to deteriorate on keeping. They are practically uniform in size and are roughly spherical with a tendency to a four-sided flattening into a rounded tetrahedron. The material may be obtained from any drug store and is not apt to be adulterated with other substances. In examining a considerable number of specimens purchased in different localities, I have never seen a grain of pine pollen or any other foreign matter.

In order to obtain a quantitative determination of the variation in size of lycopodium granules, measurements were made, using an eye-piece micrometer, both of different specimens of lycopodium as purchased, and of the same specimen after being kept under different conditions. The figures given here are the last six sets of a series of measurements and represent three different samples, one of them as purchased, the same after being exposed to the air in a thin layer for four months, and after being carried in the pocket in a capsule for four months and for eight months.

32.8 plus or minus .18 micromillimeters.
33.5 plus or minus .21 micromillimeters.
33.6 plus or minus .21 micromillimeters.
32.9 plus or minus .22 micromillimeters.
32.8 plus or minus .23 micromillimeters.
33.4 plus or minus .27 micromillimeters.

The first number in each case is the average of twenty-five measurements of lycopodium grains spread on a glass slide by the method explained below and chosen in such a manner as to avoid any source of "systematic error" which might produce misleading results. The number following the plus-minus sign is the quantity which is known by the rather misleading name of the "probable error," and represents limits in excess and in defect of the average which have been so taken that the probability of another determination falling between these limits is just equal to the probability of its falling beyond them. It indicates the way the individual measurements "scatter" or cluster around the average. The figures given are maximum diameters of a maximum optical section of the lycopodium grain. This is usually from one of the apices of the tetrahedron to the middle of the opposite convex surface. While they undoubtedly show that the variations under different conditions are the result not merely of accidental variations, but of true differences in the size of the grains, they also show that for the present purpose the diameter of the lycopodium grain may be considered as being uniformly one-thirtieth of a millimeter or thirty microns. A few grains are sometimes seen which are perceptibly larger or smaller than the majority, but these are relatively infrequent and are easily detected when several grains are seen in the same field.

1. Hayden, Thomas: A Short Notice of a Ready and Simple Mode of Measuring Microscopic Objects, Dublin Quart. Jour. Med. Sc., 1855, xix, 119.

For practical use a few grains are scattered over the preparation to be examined, and any object of interest is compared with a lycopodium grain in its vicinity, an object half as wide measuring 15 microns, one twice as wide, 60 microns, etc. With a little practice one can easily determine whether an object is, for example, nearer 20 microns than 25 microns, or *vice versa*. The lycopodium grains are not always wetted with aqueous fluid, so that in the preparation they are sometimes seen surrounded by a layer of air, but the inconvenience of moistening them with alcohol or otherwise and keeping them in some fluid is not counterbalanced by the slight advantage of having them free from air bubbles.

The dry lycopodium is conveniently kept in a hard gelatin capsule, which is easily carried in the pocket so as to be always at hand when needed. The size known as the Number 1 or five-grain capsule is large enough to be handled without difficulty and not so large as to be liable to accidental crushing. If each capsule is filled about one-third full a hundred capsules will require only two or three drams of lycopodium and the cost of both is negligible.

In furnishing these capsules to a class of students in clinical microscopy, it will be necessary to give a few directions as to the best method of using them. Any attempt at pouring or shaking out a little lycopodium will not only use up an unnecessarily large amount of the material, but will deposit the grains in large, opaque masses in a very irregular manner. The "cap" of the gelatin capsule should be removed and its edge scraped against the edge of the other half of the capsule as they are held just over the microscopic preparation. In this way the thin layer of lycopodium adhering to the inner surface of the cap is shaken out as a fine dust-cloud which does not settle rapidly, but by gentle blowing may be easily sent against the moist preparation and distributed very uniformly over it.

The results of this method of making measurements are very striking. Students who have previously been unable to give even an approximate estimate of the size of an ordinary tube-cast, an echinococcus hooklet, a tapeworm egg, etc., quickly acquire a definite conception of the magnitude of such objects, and it is a very different kind of knowledge from that which results from the mere memorizing of a row of figures.

3752 Powelton Avenue.

MUSTARD PACKS IN TREATMENT OF CAPILLARY BRONCHITIS IN CHILDREN

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NEW YORK

Mustard has been in use as a counter-irritant for many centuries, but it is astonishing how few physicians are acquainted with its excellent properties as a counter-irritant in the treatment of capillary bronchitis and bronchopneumonia in infants and children.

Most doctors content themselves with the use of some patented, odoriferous kaolin or clay paste. These patented pastes have many disadvantages. In the first place, they hinder by their weight free respiratory movement; second, their action is entirely insufficient; third, they may cause a severe dermatitis by blocking up the openings of the sebaceous glands. I am acquainted with one case in which an erysipelas was directly traced to the application of one of these patented pastes.

The value of counter-irritants in the treatment of capillary bronchitis in children has been amply demonstrated. Mustard is one of the simplest and most active of counter-irritants and one to whose efficacy in this condition there is ample testimony. It is especially indicated when such dangerous symptoms as severe dyspnea, asphyxia, cyanosis and great general prostration arise. Up to the present time, when used for this purpose, it has been mostly applied in the form of a paste or a mustard water (Heubner). For the past thirteen years I have been using a method of my own device. Both my colleagues and myself are so convinced of its undoubted efficacy, and the method possesses so many advantages over other methods of counter-irritation, that I feel constrained to publish this method here.

Two hundred and fifty c.c. (half a pint) of water and 250 c.c. of alcohol are mixed in a large bowl; to this is added from 25 to 50 c.c. (1 to 2 fluidounces), depending on the severity of the case, of freshly-prepared spirit of mustard. The spirit of mustard is prepared according to the German Pharmacopeia (the volatile oil is the active principle of mustard):

Oil of mustard.....	1 part
Pure alcohol	49 parts

A large piece of flannel is well moistened with the mixture and the body of the child wrapped up from the neck to the knees. This moistened flannel is then enveloped in a dry sheet and the child is left in this pack until the skin is bright red, which point is usually reached at the end of fifteen to thirty minutes. The child is then taken out and wrapped and left for another half-hour in a pack moistened with a mixture containing one part of alcohol and two parts of water. At the end of this time the child is wrapped up in a dry sheet. In most cases one well-applied mustard pack will suffice to bring about a permanent improvement. Relapses, however, are of frequent occurrence, whereupon packs are renewed. It is not advisable to apply the pack more than once in twenty-four hours unless the indication is unavoidable. It is advisable that the physician apply the first pack himself, not only to determine the strength to be applied, but also for purposes of instruction to the parents or nurses. The effects of this mustard pack on the child are truly striking. The cyanosis disappears promptly, the dyspnea is relieved, the pulse improves considerably and the mental condition of the patient is notably brighter. The transition from a state bordering on collapse and one which in some instances may even be termed moribund, to a condition in which the clinical picture becomes immediately more roseate, is not, I venture to say, effected so rapidly and satisfactorily by any other therapeutic weapon at our command. Heubner of Berlin explained the beneficial effect of the application of mustard in these severe cases of capillary bronchitis as follows:

The lungs of children who have capillary bronchitis and bronchopneumonia show a very pronounced hyperemia and a dilatation of the blood vessels in the walls of the bronchi. The bronchial tubes themselves are entirely stopped up with secretion. The skin of these patients presents an extreme pallor. The hyperemia of the respiratory tract may be termed an inflammatory stasis of the blood in the lungs. The hyperemia caused by the counter-irritation of the mustard on the skin, therefore, opens up a new territory for the circulation of

the blood. Hence, the quantity of circulating blood in the lungs is diminished in a given space of time, the work of the heart is reduced and the rapidity of the circulation of the blood in the lungs increased.

SUMMARY

The advantages of my method of applying the mustard pack in capillary bronchitis and bronchopneumonia of children are as follows:

1. It is surprisingly rapid in effect.
2. Its light weight does not materially hinder respiratory movement.
3. It can be applied without removing the enfeebled patient from the bed.
4. It is inexpensive.
5. It is clean.

224 West Twenty-Fourth Street.

REMEDY FOR THE PAIN OF INSECT BITES

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CAPE COLONY, SOUTH AFRICA

The bites of mosquitoes and various gnats, the stings of wasps, bees, etc., have often produced a considerable amount of pain and discomfort and even death has resulted as a consequence of such stings in human beings.

No effective remedy, as far as I am aware, has been recommended for the alleviation of the suffering caused by these insects. The flesh about mosquito-bites if irritated or rubbed very often suppurates and a considerable slough comes away.

For some time past I have used iodine crystals in saponated petrolatum, 30 to 40 grains to an ounce. A few drops of this is rubbed over a mosquito-bite with magical effects. I have also rubbed it over parts stung by wasps of various sorts and sizes. The pain of the sting was very quickly relieved. It seems to me it might be used, in addition to other measures, in cases in which one was bitten by a viper.

Therapeutics

PROPRIETARY PREPARATIONS VERSUS THE UNITED STATES PHARMACOPEIA AND NATIONAL FORMULARY PREPARATIONS

The following are criticisms of the exclusive use of the United States Pharmacopeia and National Formulary preparations:

1. If physicians were to confine themselves to these preparations, useful new drugs would never become known, and the medical world and its patients would thus be deprived of valuable remedies.
2. Many of the Pharmacopeia and National Formulary preparations are imperfect in their make-up, and are poor imitations of proprietary preparations.
3. Some products must be ordered by proprietary names, and hence consistency is broken in favor of certain firms.

There is no question that there are a few valuable drugs (not mixtures) that have no recognition in the Pharmacopeia and National Formulary. To avoid this omission, once in five, or perhaps better once in three years, there should be issued an addendum to the Pharmacopeia which should contain drugs found valuable by investigations made by the Committee on Revision of the Pharmacopeia. Drugs so recommended would

be considered official and would be incorporated in the next Pharmacopeia. At present the Council on Pharmacy and Chemistry is investigating new drugs and putting its honest stamp of approval or disapproval on each. The value of such investigation and such recommendation is inestimable to the practicing physician.

There is no excuse for a large number of products produced by different firms which differ but slightly, if at all, in their chemical action or in molecular constituency. It would be obviously impossible to recognize all these drugs in the Pharmacopeia. Also if a physician tries several drugs or preparations which differ from each other *in name only*, and then, influenced by the ever-varying behavior of the same drugs with different individuals, reports that one preparation is far ahead, in its favorable action, of all the others, it can readily be seen that such medical reports are grossly deceptive, sometimes prejudiced, and often unwittingly absolutely untrue. This is the reason that one physician declares such and such a silver preparation, for instance, to be far better than all others, a second prefers another preparation of silver, and a third still another. Chemical analysis will show that these preparations are practically alike, and careful clinical investigations, *long enough continued*, will show that each of these preparations acts similarly to the others, provided that the dose of the active ingredient is the same. Likewise, the various iodine combinations which are said "to give no symptoms of iodism" are shown by chemical analyses to contain such small amounts of iodine that they could not give undesirable symptoms. In other words, if as small a dose of potassium or sodium iodide should be given as is represented by the amount of iodide in the recommended dose of the proprietary product, the absence of unpleasant symptoms would be the same.

On the other hand, when a physician uses every proprietary preparation or drug that is presented to him he will very soon, *by the variations in clinical experience and results*, unjustly condemn a splendid preparation offered him by one firm and laud a similar but inferior preparation offered him by some other firm. This is manifestly unjust to the pharmaceutical firm that produces the best preparation. The physician in general practice has no way of determining which of these preparations is the best. Consequently there should be some referee to determine this for him, and the Committee on Revision of the Pharmacopeia should be the court of appeal. In the meanwhile the Council on Pharmacy and Chemistry of the American Medical Association is presenting honest reports of the products offered it for investigation.

It is true that many National Formulary preparations, as well as some of the Pharmacopeial preparations, are imperfect, as, for instance, some of the organic iron preparations. If a physician does not think that he can get the results desired from the simple iron preparations, and wishes to order an organic preparation, an honest druggist should furnish him with the best preparation that can be bought. If the best preparation is made by a certain firm, the druggist should buy that preparation of that firm. It should not be necessary for the physician to specify. To put the druggist on his honor, a physician writing for any preparation that is not readily made by the pharmacist himself should write after the preparation "the best," and the druggist so trusted should furnish the best preparation and charge the patient what he must for the best.

With the splendid laboratory equipments of the large pharmaceutical firms, and with the scientific ability of their chemists, it would seem to be the duty of these firms to prove to the committees revising the National Formulary and Pharmacopeia how much better their preparations of Pharmacopeial and National Formulary combinations are than those now official. The official preparations should then be made according to the formula proved chemically and pharmacally to be the best, and all would be the same, and each druggist could buy of the firm with whom he traded, and the physician ordering that preparation could always expect the same product.

While this suggestion is idealistic and seems to partake of celestial perfection, still it is not only possible, but probable, that sooner or later such conditions will obtain. It resolves itself into the following propositions:

1. Every patient desires the best treatment that he can obtain.

2. Every physician will order the best preparations of drugs of which he has knowledge.

3. Every druggist will fill the prescription with the best preparation called for that he can buy.

4. Every pharmaceutical firm will furnish as good a preparation of the best drugs as can be obtained in any market, and each preparation so furnished will come up to the standard required by the official books, viz.: the United States Pharmacopeia and National Formulary.

The practicing physician is now confronted by two evils. If he specifies a particular make of a preparation in its original package the patient often receives therewith a mass of literature concerning other products made by the same firm and gratuitous instruction not only "how to take" this preparation and of the many things for which it is of value, but also is advised to prevent other conditions or diseases by taking other remedies which this firm produces. Even if the druggist removes this mass of literature and superfluous labels from the package, often the firm's name or the name of the preparation is imprinted in the glass, and to the patient it appears that he has paid perhaps \$2.00 for an office visit to get a \$1.00 bottle of "patent medicine." If, on the other hand, the physician orders the preparation removed from its original package and transferred to the druggist's bottle, there is the possibility, and it probably occurs not infrequently, that the patient will receive an inferior product substituted for the one ordered. This generally can not be discovered by the physician or the patient and, therefore, can not be prevented. Consequently a prescription calling for "the best" puts the druggist on his honor, and the patient is more likely to receive the best.

The above method of prescribing products difficult of manufacture applies to well-recognized preparations and not to mixtures such as cough, diuretic or hypnotic mixtures. Any ready-made preparation which contains a series of ingredients is simply like ready-made clothing and will fit the individual about as well. In other words, the patient is fitted to such a preparation and not the preparation fitted to the patient. If a physician can not write a prescription that is individualized to his patient, he should not practice medicine, but should instead take steps to prepare himself in this important branch of therapeutics.

If a physician desires to order a proprietary preparation of milk, laxative salt, disinfectant, antiseptic mix-

ture, or cosmetic ointment or powder, he should not write a prescription for it. He should either tell the patient to obtain it, or write the name informally on any piece of paper, or on the back of his prescription blank. If this method is followed there is no prescription to be filled, the patient is not charged for the filling of a prescription, the patient knows that he is obtaining a proprietary article, and does not think that the physician has endeavored to humbug him by writing a formal prescription for something he could have readily obtained without a prescription.

Every physician should be pleased to meet a gentlemanly traveling salesman of a reputable pharmaceutical firm. He may investigate new drugs and elegant preparations, but he should never tolerate the presentation of a mixture which he should be better able to combine for himself to suit his individual patients. If a new drug is offered, synthetic or other, and the physician wishes to try it, he should *order it as the drug* and give it in capsule, powder or solution as he deems advisable. He should *never prescribe a preparation* of this new drug offered by the firm interested, as many times the activity has been accentuated by the addition of some very common and well-known active drug.

It should be repeatedly declared and understood by all that the best therapeutic work can be done only by the perfect cooperation of pharmaceutical firms, dispensing druggists and physicians.

DIVERTICULITIS

Surgeons are directing the attention of the profession to an inflammation of this second, but irregularly placed, "appendix" of the intestine, and it seems now to have been proved that not a few cases of unexplained abdominal pain and some instances of diffuse peritonitis are caused by inflammation of this structure. The symptoms of acute inflammation of Meckel's diverticulum are similar to those of appendicitis, except that the region of primary tenderness and pain is generally in the left abdomen. A diagnosis of localized inflammation in this region would call for the same treatment as that of acute appendicitis, viz.: absolute rest, local ice applications, gentle evacuates of the bowels and a liquid diet. Perhaps enemata other than that of small quantities of warm oil had better not be used.

The symptoms calling for surgical consultation and perhaps immediate operative interference are the same as in appendicitis, viz.: high temperature, rapid pulse, severe pain, a tumor and increasing leucocytosis. Perhaps, like appendicitis, a serious inflammation of this structure could occur without a leucocytosis, hence leucocytosis should be confirmatory and should not necessarily make a decision for or against operation.

Chronic inflammations, more frequently in the region of the sigmoid, probably occur oftener than has yet been noted. Gentle oil injections or small quantities of physiologic saline solution to keep the sigmoid and descending colon free from any stasis of feces would be the proper local treatment. A diet that did not cause intestinal indigestion and intestinal fermentation in the individual case would be the diet indicated. Small but sufficient doses of saline laxatives should be the laxative treatment, if such were needed. If pain and bowel discomfort continued or recurred in the same region of the abdomen, and localized tenderness was found on the patient's moving about and attending to his ordinary duties, operative interference should be considered.

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INDUSTRIAL HYGIENE: A NEGLECTED FIELD

We recently commented on George M. Kober's "Industrial and Personal Hygiene," which may be regarded as one of the first evidences that our country is at last entering on the exploration of what has previously been an almost completely neglected field. Indeed, Dr. Kober was impelled to make the above investigation by the statement of a German hygienist to the effect that the United States alone of all civilized countries could furnish no information on the subject of its industrial accidents and diseases.

It is almost a century since Great Britain and France began the study of dangerous trades and their consequences, and within fifty years most of the European countries had followed their example. There is now in all these countries a more or less complete system of legislation governing the dangerous trades, and all trades are listed as dangerous which are in any way deleterious to the health of the workers. Moreover, legislation follows the development of industry, for from time to time medical commissions are appointed to inquire into the possible dangers of new substances employed in the trades. For instance, a British commission has just reported concerning the poisonous effect experienced by workers in African boxwood, which was introduced into England not long since and is now extensively used in the manufacture of weavers' shuttles. In Germany a careful study has been made of the dangers attending the use of the newer anilin derivatives. France has turned her attention especially to the development of the lead trades and has published reports showing the increase in cases of lead-poisoning due to the enormous growth of the electrical industry. All these countries have periodicals devoted to the subject of industrial hygiene, and at the last meeting of the International Congress of Hygiene in Berlin no less than fifteen papers were presented dealing with the diseases and accidents of the industrial world.

When we turn to our own country the contrast is striking. We have statistics as to the mortality rate in the different trades but almost nothing as to the far more important feature, the morbidity rate. In the case of women wage-earners the uselessness of this one-sided information is strikingly shown, for according to the federal statistics women factory workers have a lower

death rate than any other class of society, the truth being, of course, that few women die as factory workers. When death comes most of them have passed into the class of housewives. Nor do the mortality statistics give really accurate information, because the classification of the trades is not sufficiently discriminating. Thus, the men who work at the metal-polishing wheels are listed together with the men in other branches of the metal trades, and therefore the federal figures do not show the enormous death rate from pulmonary disease among these men which is revealed by an examination of the records of the Metal Polishers' Union. In the older countries not only the death rate but the injury to health caused by the trades is made the special object of study and of government control; and here we American physicians fall far behind our European contemporaries. The physicians of Germany, France, Great Britain and Switzerland have grown alert to the close connection between occupation and disease. In this country there is a space on the physician's history sheet for "occupation," but unless the connection is obvious it is too often overlooked. Take the lead trades, for instance. How many of us have any adequate conception of the wide use of lead and its salts in the different trades? In France it has been estimated that lead in some form enters into the manufacture of no less than 111 different articles, and the list includes some of the largest industries in this country, such as the rubber industry, the potteries, the manufacture of electrical appliances and of tinware. To most of us lead-poisoning is suggested only if we see a painter or a printer with wrist-drop or colic, while a French physician will look for arteriosclerosis or lead cachexia if his patient tells him that he is making storage batteries or handling soft rubber, and will suspect chronic lead-poisoning if he has a case of apoplexy in a working man.

There are signs, however, that we are beginning to wake up to a sense of our inferiority in the field of industrial hygiene. Dr. Kober's book is one sign; others are to be found in the work of the State Bureau of Labor and Industrial Statistics of Wisconsin, in the reports already issued by the State Board of Health of Massachusetts, in the appointment of a commission to study the dangers of industry in Illinois, and in the work of various lay investigators such as those employed under the Sage Foundation. The important thing to be emphasized is that in all work of this sort laymen must fall back upon the help of physicians; and they should have this help.

The investigator has inspected, we will say, a factory in which the ventilation is bad and the amount of fluff and dust excessive. He has found large numbers of the employes pale and unhealthy-looking. Unwilling to depend on his own impressions alone, he seeks out the physicians of the neighborhood and inquires as to the diseases most common among the mill hands. While he finds some practitioners who show that they have

devoted thought to the connection between occupation and disease, he is likely to find many who have not done so. The latter may not know even in what part of the work their patients are engaged and for what dangers to look. Many will not realize that felt-hat workers handle skins treated with nitrate of mercury; that tin-platers are exposed to sulphuric acid fumes; that arsenical poisoning should be looked for in artificial flower-workers and lead-poisoning in women who stencil enameled signs. It is only by painstaking study of this kind on the part of men engaged in practice among working people and of men in charge of our great dispensaries and public hospitals that the groundwork can be laid for the science of industrial hygiene in the United States. Our problems are different from those of Europe. Machinery is used here far more generally than in the older countries, and in consequence the poisonous trades have been robbed of many of their dangers. "Phossy jaw" (necrosis of the jaw due to phosphorus-poisoning) is practically unknown in our match factories; file-making, which in England is carried on by hand and is one of the worst of the lead trades, is here done by machinery and is comparatively safe. On the other hand, this increased use of machinery is productive of ill as well as of good. Our accident rate is far above that of any other country, and nowhere is work done with such speed. European hygienists have begun to study the effects of overfatigue on the health of the workers, but the "piece-worker" in our factories attains a speed unknown to the workers in the older countries and must suffer a greater degree of fatigue.

More and more is urged the necessity of legislative control of the industries which are dangerous to the health of the workers, but such legislation should not be a mere copy of the laws of Great Britain or of Germany, but should be planned to meet the needs of our own situation; and this can not be done until the conditions of our industrial world have been studied by competent men.

AN OBJECT LESSON IN PUBLIC POLICY AND POLITICAL ACTION

An object lesson of deep significance to legislators, to the medical profession, and to the public in general has just received its finishing touches by the selection of Hon. Theodore E. Burton to succeed Hon. J. B. Foraker as United States senator from Ohio.

The lesson began a number of years ago in the fight to secure a national food and drug law. This measure, designed to secure good food for the well and safe medicines for the sick, was fostered by the American Medical Association. The entire force of its legislative organization, with actual membership in every county and actual influence in every school district in the United States, naturally espoused the cause of the people. On the other side were ranged highly capitalized interests, representing the adulterators of

foods, the manufacturers of dangerous and enslaving drugs and the makers of low-grade whiskies.

The favorite method of the opposition was to assume an air of friendliness for the bill while offering amendments that would utterly destroy its force. When the bill was sent to the Senate in February, 1906, these tactics were adopted by Senator Money for the canning interest, Senator Hemenway for the "patent-medicine" interest, and Senator Foraker for the whisky interest, and later in the House by Representative J. H. Southard, from Ohio, for the proprietary medicine interest.

The attitude of these four men in particular was so disingenuous and in such flagrant disregard of the expressed will of the people as manifested by and through the entire medical profession that it amounted to an offense to every physician in the United States. So flagrant and contemptuous, indeed, was the offense that the moral force of the whole medical profession, especially of the states of Mississippi, Indiana and Ohio, was placed in the balance. In this country such a question can be tried out only in the political arena. In consequence, the attention not only of the medical profession, but of the people of those states, was called to the facts. The slow but sure process of molding public opinion by interviews, by heart-to-heart talks between physicians and their patrons, was at once actively inaugurated, and has been as actively maintained during the two years that have since elapsed.

Senator Money retired on account of ill health before the campaign against him could be made effective. The first congressman to feel the chastening rod was Representative Southard, of the Ninth Ohio District, who, under the active opposition of the physicians of his district, was defeated for re-election in 1908. In Indiana, the widespread opposition of physicians was powerless in the presence of machine methods to prevent the nomination of a Republican legislature favorable to Senator Hemenway's return. So Senator Hemenway's legislature itself was not elected, the opposition of the physicians contributing no little to the result.

In Ohio the nearly nine thousand physicians of the state, acting as a unit, in their house-to-house visits during two years, had so far molded public opinion against Senator Foraker that his connection with the Standard Oil Company, shown by Mr. Hearst, was unnecessary to crystallize an antagonistic sentiment. But when the senatorial campaign came on Dr. Charles A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, for the purpose of making the lesson more specific and more sure, himself entered the lists as a candidate for the office. He made a thorough canvass of his state and presented to the people their own cause as represented in still further perfected food and drug legislation, in the establishment of a national department of public health and in the enactment of other social and

economic reforms. The proprietary medicine interest threatened to withdraw their advertising from newspapers that recognized his candidacy and in that way deprived the movement of much deserved publicity. Nevertheless, Dr. Reed's canvass was a success as an educational propaganda.

After the selection in caucus of Mr. Burton, who may be set down as an ardent friend of everything that is for the best interests of the public in the way of national legislation, Dr. Reed gave the press a statement, which commenced with the remark that he and his friends were entirely satisfied with the result, and which concluded as follows: "As for me, all I have to say is that three United States Senators and one Ohio Congressman who tried to ruin the pure food and drug bill have now all been eliminated from public life. It is a glorious clean-up. From this time on let no member of either branch of Congress imagine that he can thus disregard the welfare of the people and rely for immunity on the shortness of the American memory, the fancied remoteness of Washington or the relative inaccessibility of the *Congressional Record*."

DISSOCIATION OF PERSONALITY AS A NEWS STORY

The remarkable case of dissociation of a personality described by Dr. Morton Prince¹ is well known to the medical profession. The subject is one that calls for careful investigation—in the interests of science at the hands of psychologists and neurologists, and in the interest of their potential patients at the hands of the profession at large. It is, however, an altogether different thing to publish the details of such investigations as a spice to whet the appetite for morbid curiosity of a sensation-loving public, as has been done recently by the publication of a story of the newspaper stamp made out of this case by a writer in the *Ladies' Home Journal*. Of course no one can prevent a "story" being made out of the contents of a book that can be purchased through any bookseller. It should be remembered, however, that this book is of a professional character and is of such a price as necessarily to minimize the likelihood of its being widely read outside of the clientèle for which it was written and is suitable. But we trust that the suggestion that the newspaper publication of this lurid story received the sanction of Dr. Prince, as might be inferred from the publication of Dr. Prince's portrait and the statement that it is based partly "on personal interviews with the author," is incorrect.

The determination of the medical profession to endeavor to remove the veil of mystery that from the earliest time has enshrouded medicine from the public at large, by enlightening it concerning the basic facts of medical science, more especially in relation to the

prevention and early recognition of disease, can not reasonably be held to include the publication of the most intimate details of the life of a particular patient. The objections to such a course have been well expressed in a contemporary,² which, after pointing out that many of the statements are of the kind that would ordinarily not be told even to a close friend, and to the physician only under the conviction that it would go no further, denies utterly the right of the public to hear or to read such statements, and confesses that one's feelings on reading this article as published are much the same as if one were stealthily perusing a personal letter belonging to someone else. Even if it is not wrong, it is emphatically in the worst possible taste. It may be urged that Dr. Prince would hardly have published his book without the consent of the patient, and save in such a form as to preserve the patient's anonymity, and that this by implication justifies the use of the subject matter under the above described circumstances. The *Montreal Medical Journal* pertinently asks whether or not any scientific purpose is thus served. The subject of mental disease—and it may not occur to the public that this woman was insane merely in an extraordinary manner—is so difficult a subject to the best trained alienist that there is frankly no hope of a dabbler ever learning anything about it, and the cause of public education is no more helped by such an article than it would be by a dissertation on the subject of intrauterine deformities.

The fact of having themselves been born might be thought to give the public the right to ask to be enlightened on the latter, but the claim would hardly be allowed by any sane court. On the other hand, the same journal asks: "Can any harm be done by such an article?" and answers in the affirmative. The average American (of the United States or Canada) has of late been paying as much attention to introspection as is good for him or her. It is easily imaginable that many young women, seeing in some degree in their own minds parallels to the case here recited, may thereby have tendencies to hysteria if not to insanity stimulated; on the other hand, they may learn to excuse their acts by the supposition that they are in the grasp of a higher power, namely, the multiple personality. The precedent is in the highest degree dangerous, and we can only hope it will not be followed in the case of other similar sensational stories. There are two kinds of curiosity: that which is the basis of education, and that tending rather to prurience. The latter is already too common to need help from medicine.

DEATH BY ELECTROCUTION

The question of the efficiency of the execution of criminals by electric current is again being agitated in the east. The old claims are being made that the electric current does not destroy life, but that the real

1. Dissociation of a Personality, by M. Prince. New York: Longmans, Greene & Co., 1905; reviewed in THE JOURNAL, Feb. 16, 1907, p. 635.

2. Montreal Medical Journal, December, 1908.

execution in these cases is death by postmortem examination, by burial or by some other extraordinary extraneous occurrence. For this reason it has been seriously proposed, according to the newspapers, to attempt to revive electrocuted criminals. One can hardly object to such a test on the ground of humanity, but the fact that electrocution is successful no serious-minded person who has looked into the subject can doubt. The few instances reported of individuals who have recovered after accidental exposure to electric currents of very high voltage are hardly pertinent to the case, and it is known that such accidents are usually fatal in spite of the differences of individual resistance and other conditions that might make the current less certainly deadly. These are properly guarded against in a legally conducted execution and the chances of survival are as remote as they would be after hanging, if, indeed, not more so. Many cases have been reported in which hanging proved ineffective, but how this could happen under modern conditions with physicians to test the efficiency of the method at the time, as is provided for in properly conducted legal executions, is not readily imaginable and still less so in the case of a properly conducted electrocution. Humanitarians who are so desirous to have the criminals, of all men, the ones to die painlessly, have little call to criticise the use of the electric chair.

THE LAST PART OF THE HUMAN HEART TO DIE

Physiologists and clinicians are alike interested in the problem of the portion of the heart responsible for the initiation of its rhythmic impulses. Research in recent years has tended toward the localization of this primary automatic center either in the sinus region or in the great veins behind the sinus. This study in the human heart is complicated somewhat by the fact that the sinus region is not so well separated from the auricle or atrium as it is in the lower animals, on which much of the experimental work has been done. An interesting observation has recently been made by W. Koch.¹ This observer had the opportunity of examining the dying heart of a human fetus and of comparing the phenomena there with the dying process in the rabbit's heart. He finds that the part of the heart which continues to contract longest during the death process is situated, not at the root of the superior vena cava but in the wall of the coronary vein of the heart, a situation which in his opinion belongs embryologically to the sinus venosus. It will be recalled that Tawara, the Japanese investigator who worked with Aschoff, was able to follow the ramifications of the conducting muscle bundle to this region also. If these observations of Koch are confirmed they will strongly support the hypothesis that the sinus is the primary motor center for the human heart as well as for the heart of animals. It may be interesting in this connection to note that actual pathologic lesions have been reported in the sinus region of the heart in patients dying of chronic arrhythmia.

Schoenberg² has examined about fifty hearts with especial reference to the condition of the junction between the musculature of the atrium and that of the superior vena cava. In five cases in which the arrhythmia was observed carefully during life Schoenberg demonstrated inflammatory changes in the region mentioned. He thinks that his findings are in favor of the theory that the stimuli for the contraction of the human heart originate at this sino-atrial junction.

Medical News

ILLINOIS

Receives Many Patients.—The annual report of Cook County Hospital for the fiscal year 1908 shows that 28,142 patients were admitted to the hospital. At the beginning of the year there were 1,145 patients under treatment, and at the close of the year, 1,322. The daily average number of patients during the year was 1,274, and the average daily cost for each patient was 99 cents.

Cocain Law Upheld.—The new cocain law was declared valid December 16, by the state Supreme Court in the first case referred to it since the act was passed by the legislature. The case at issue was a fine of \$500 imposed on Frank and Paul Zito, druggists of Chicago, who were convicted in the lower court of having sold catarrh powder containing cocain. The Zitons contended that the powder was sold by a clerk, but the Supreme Court held the owners responsible. The law holds that cocain must not be sold in "patent medicines" or any form excepting on the prescription of a physician.

Society Meetings.—At the thirty-fifth annual meeting of the North Central Illinois Medical Association, held in Princeton, December 1 and 2, the following officers were elected: President, Dr. James F. Percy, Galesburg; vice-presidents, Drs. Franklin A. Turner, Sandwich, and Alfred E. Owens, Princeton, and secretary-treasurer, Dr. George A. Dicus, Streator. At the annual meeting of Effingham County Medical Society, held December 8, Dr. Charles F. Burkhardt, Effingham (for the last four years secretary of the society), was elected president; Dr. Frank W. Goodell, Effingham, secretary; Dr. Henry Taphorn, Effingham, treasurer; Dr. George J. L. Haumesser, Shumway, delegate to the state society, and Dr. Joseph B. Walker, Effingham, a member of the medical defense committee.

Chicago

Contagious Diseases.—The contagious disease condition has not varied much in the past week, during which 728 cases were reported, distributed as follows: Scarlet fever, 229; diphtheria, 193; measles, 97; tuberculosis, 65; typhoid fever, 41; chickenpox, 36; pneumonia, 35; whooping-cough, 14; puerperal fever, 3; and minor communicable diseases, 15.

A New Journal.—The latest journalistic applicant for medical favor appears this month in Chicago. Its title is "Hygiene and Diet, and How to Live." It is a monthly periodical devoted to sanitary food, clothing, shelter, and how to prolong life, is edited by Dr. Carl H. von Klein, and published by the Hygiene and Diet Publishing Company of Chicago.

New Sanitarium.—As the result of a year's work on the part of Jewish club women of the city, the Winfield Tuberculosis Sanitarium will soon be opened. The project was made possible by the gift by the president of the association, of a 17-acre tract at Winfield, Ill., on which there is a modern building of 36 rooms, which has been renovated and fitted with ample space for outdoor sleeping quarters.

Down-Town Relief Stations.—Plans are going forward rapidly for opening a series of emergency accident relief stations in the down-town district to be known as the Iroquois Memorial Stations. At the meeting between Health Commissioner Evans and Dr. George J. Tobias, president of the Iroquois Memorial Association, plans were discussed for remodeling the city property at 87 Market Street so that

1. Ueber das Ultimatum moriens des menschlichen Herzens: ein Beitrag zur Frage des Sinusgebietes, Beitr. z. path. Anat. u. z. allg. Path., 1907, xiii, 202.

2. Schoenberg, S.: Ueber Veränderungen im Sinusgebiet des Herzens bei chronischer Arrhythmie Frankf. Ztschr., f. Path., 1908, ii, No. 1.

construction on the first station may be begun in May next, and turned over to the city on the sixth anniversary of the Iroquois Theater fire.

The Death Record.—The total mortality for the week ended January 2 was 615, an increase of 133 over the preceding week, but a decrease of 50 as compared with the corresponding week of last year, the respective annual death rates being 14.41, 11.59 and 16.10 per 1,000. There was a considerable increase in the mortality for chronic diseases, especially nephritis, heart disease and consumption, while the mortality from pneumonia was markedly decreased. There were 80 deaths from pneumonia, 73 from heart disease, 68 from tuberculosis, 66 from nephritis, 39 from violence (including suicide), 32 each from cancer and acute intestinal diseases, 20 from diphtheria, 12 from scarlet fever, 8 from typhoid fever, 2 from influenza, and 1 from whooping-cough.

INDIANA

Society Meetings.—At the annual meeting of Clay County Medical Society, held in Brazil, December 17, the following officers were elected: President, Dr. Samuel G. Hollingsworth, Brazil; vice-president, Dr. Timothy M. Weaver, Staunton; secretary-treasurer, Dr. George W. Finley, Brazil; censors, Drs. T. Roy Cook, Bowling Green; George M. Pell, Carbon; and Harold J. Pierce, Cloverland. —At the annual meeting of Lake County Medical Association, held in Hammond, Dr. Alexander G. Schlieker, East Chicago, was elected president; Dr. William P. Alexander, Gary, vice-president; Dr. Eldridge M. Shanklin, Hammond, secretary-treasurer; Dr. L. Eleanor Scull, Hammond, censor; Dr. William F. Howat, Hammond, delegate to the state society; and Dr. Frederick W. Sauer, Indiana Harbor, alternate.

LOUISIANA

Personal.—The governor has appointed Drs. Andrew S. Reisor, Louis Abramson and James F. O'Leary members of the Shreveport board of health. —Dr. William L. Dickson has been appointed chairman and Drs. John J. Scott, William Dalzell, John Comegys and Thomas P. Lloyd members of the board of trustees of the Charity Hospital, Shreveport. —Dr. C. William Groetsch, New Orleans, has been appointed assistant coroner of Orleans parish, vice Dr. S. Fitzhugh Mioton, retired. —Dr. Willoughby E. Kittridge has been elected president, and Dr. Fulton Rogers, secretary, of the Napoleonville board of health. —Dr. Sidney P. Israel has been appointed surgeon with rank of major, and Drs. Frank J. Kinberger and Clarence P. May, captains and assistant surgeons in the Second Infantry La. N. G. —Dr. Richard O. Simmons, Alexandria, was painfully injured recently in a collision between his buggy and a wagon. —Dr. Lee C. George, Monroe, has been appointed division surgeon of the Iron Mountain-Missouri Pacific Emergency Hospital, Monroe. —Dr. George Rossner, Gretna, has been made president of the board of health of Jefferson parish, vice Dr. C. Milo Brady, New Orleans, appointed inspector of the State Board of Health.

MARYLAND

Baltimore Deaths.—For the week ended January 2, the deaths in Baltimore numbered 218, equivalent to an annual rate of 19.06 per 1,000. Pneumonia caused 32 deaths and consumption 26 during the week.

Banquet to Health Commissioner.—Dr. James Bosley, health commissioner of Baltimore, was tendered a banquet by the physicians and other attachés of the health department, December 29. Dr. Thomas Richardson of the quarantine hospital presided as toastmaster.

Writers of Maryland.—In a list of authors prepared for the *Baltimore Sun* by Dr. Bernard C. Steiner, appear the names of six medical men, namely, Dr. Eugene Fauntleroy Cordell, author of the "Medical Annals of Maryland," "Historical Sketch of the University of Maryland," and "The Drs. Gustavus Browns of Lower Maryland"; Dr. Howard Atwood Kelly; Dr. Thomas McCrae, assistant editor of Osler's System of Medicine, and author of a work on "Cancer of the Stomach"; Dr. William Osler, regius professor of medicine at Oxford University; Dr. Leonard K. Hirshberg, author of "How to Feed the Baby," "Medical Fallacies," "Practical Bacteriology," and "Light as a Therapeutic Agent," and Dr. Pearce Kintzing, author of the "Science of Internal Disease" and "Long Life and How to Attain It."

Society Meetings.—At the annual meeting of Talbot County Medical Society, held in Easton, December 6, the following officers were elected: President, Dr. Charles H. Rose, Cordova;

vice-presidents, Drs. Charles F. Davidson, Easton, and William S. Seymour, Trappe; secretary-treasurer, Dr. S. Denny Willson, Easton; censors, Drs. Clifford M. Stelle, Cordova, and Samuel C. Trippe, Royal Oak; delegate to the Medical and Chirurgical Faculty of Maryland, Dr. Philip L. Travers, Easton, and alternate, Dr. James A. Stevens, Easton. The society passed a resolution endorsing state care for the insane. —The Medical Club of Washington County, at its annual meeting, held in Hagerstown, elected the following officers: President, Dr. Augustus C. Maisch; vice president, Dr. F. H. Charles; secretary-treasurer, Dr. Samuel M. Wagaman, and curator, Dr. Luther H. Keller.

MICHIGAN

Society Meetings.—At the annual meeting of Chippewa County Medical Society (including physicians of Chippewa, Luce and Mackinac counties), held in Sault Ste. Marie, December 1, Dr. John J. Griffin, Sault Ste. Marie, was elected president; Dr. Henry E. Perry, Newberry, vice-president; Dr. James Gostannon, Sault Ste. Marie, secretary-treasurer, and Dr. George J. Dickinson, Sault Ste. Marie, delegate to the state society. —The annual meeting of Calhoun County Medical Society was held in Battle Creek, December 1, and the following officers were elected: President, Dr. George B. Gesner, Marshall; vice-president, Dr. Herbert A. Powers, Battle Creek; secretary, Dr. Arthur S. Kimball, Battle Creek; delegates to the state society, Drs. William C. Marsh, Albion, and William H. Riley, Battle Creek, and alternates, Drs. Samuel R. Eaton and M. A. Mortensen, Battle Creek. —Oakland County Medical Society held its annual meeting and banquet in Pontiac, December 2. The following officers were elected: President, Dr. Clark J. Sutherland, Clarkston; vice-president, Dr. Thomas E. McDonald, Holly; secretary-treasurer, Dr. John T. Bird, Clarkston; and censors, Drs. Edmund A. Christian, Nathan B. Colvin and Mason W. Gray, all of Pontiac. —At the annual meeting of Hillsdale County Medical Society, held in Hillsdale November 27, Dr. Silas B. Frankhauser, Hillsdale, was elected president; Dr. Ira J. Stoner, Ransom, vice-president; Dr. W. F. Waller, Frontier, treasurer, and Dr. Burt F. Green, Hillsdale, secretary. —An antituberculosis society was organized in Hillsdale, December 2, with Rev. N. E. Jerome, president; Dr. Walter H. Sawyer, vice-president, and H. C. Blackman, treasurer. —The annual meeting of Muskegon-Oceana County Medical Society was held December 4, in Muskegon. The following officers were elected: Dr. John F. Denslow, Muskegon, president; Dr. John D. Buskirk, Shelby, vice-president; Dr. Vernon A. Chapman, Muskegon, secretary (re-elected); Dr. Jacob Oosting, Muskegon, treasurer; Dr. George S. Williams, Muskegon, trustee; Dr. Frank W. Garber, Muskegon, delegate to the society, and Dr. John D. Buskirk, Shelby, alternate.

MINNESOTA

Personal.—Dr. James E. Moore has been made professor of surgery in the University of Minnesota, Minneapolis. —Dr. T. E. Villiers Appleby, St. Paul, is said to have been paid \$175,000 in gold, in settlement of all claims by him against the estate of his late wife.

Asks Quadrupled Appropriation.—The State Board of Health announces that it intends to ask \$100,000 to carry on the work of the department for the coming year. It wishes to establish branch laboratories at Mankato and Crookston, and also has to carry on the work of vital statistics imposed on it by the legislature.

McCormack Itinerary.—Dr. J. N. McCormack will lecture before the Ramsey County Medical Society, in St. Paul, January 11; before a public meeting in St. Paul, January 12; before the Hennepin County Medical Society in Minneapolis, January 13; before a public meeting in Minneapolis, January 14, and before the Southwestern Medical Society, January 15.

To Celebrate Union of Schools.—To celebrate the fact that the University of Minnesota has absorbed the last of the private medical schools of the state, so that the teaching is entirely in the hands of the college of medicine, the faculty of that department invited the faculty, the students, the medical alumni of the university, and the medical profession of the state to attend a unification meeting December 8. President Northrop presided and the principal address was made by Dr. Richard Olding Beard, head of the department of physiology, in which he gave a review of the history of the medical teaching in the state. Addresses were also made by Drs. Alexander J. Stone and Parks Ritchie, St. Paul, Drs. Frederick A. Dunsmoor, Charles A. McCollom and Jehiel T. Moore, Minneapolis, the governor of the state, and others.

MISSISSIPPI

Sentenced for Life.—Thomas J. Birdsong, a dentist of Hazlehurst, charged with the murder of Dr. Albert B. Pitts, is said to have been sentenced to imprisonment for life, December 15.

Personal.—Dr. T. H. Henry has been elected president and Dr. Robert S. Curry a member of the board of health of Columbus.—Dr. Edwin H. Caraway has been elected president of Long Beach.—Dr. William E. Moody, Lake, was shot and dangerously wounded in a quarrel December 15.

Vote for Public Health Bureau.—The Biloxi Commercial Club recently adopted resolutions asking the congressmen from Mississippi to vote in favor of the establishment of a public health bureau as outlined in the resolutions adopted by the House of Delegates of the American Medical Association at the Chicago session.

Society Meetings.—At the second semi-annual meeting of Clarksdale and Six Counties Medical Society, held in Clarksdale December 10, a resolution was adopted barring from membership in the organization any physician who should examine for life insurance for a less fee than \$5. The following officers were elected: Vice-president for Tallahatchie county, Dr. W. A. Prince, Needmore, and censors, Drs. T. R. Montgomery, Mattson, and John S. Brooks, Robinsonville.—Jefferson County Medical Society, at its annual meeting held in Fayette December 12, elected the following officers: President and delegate to the state medical society, Dr. J. D. Shueles, Church Hill; vice-president, Dr. Leon R. Harrison, Fayette, and secretary-treasurer, Dr. John V. McNair, Fayette.

MISSOURI

Fire in Hospital.—On December 20, fire caused damage to the extent of \$15,000 to the Laywood Hospital, Sedalia, but all patients were removed in safety.

Personal.—Dr. James K. Graham, St. Joseph, formerly county physician, has been appointed a member of the board of commissioners to pass on the condition of the Buchanan county jail.—Dr. R. L. Gleason, St. Louis, has resigned from the staff of the City Hospital to accept an appointment in the Indian Service in Oklahoma.

Society Meetings.—At the meeting of the Grand River Medical Society in Chillicothe, December 9, the name of the society was changed to Grand River Medical Society of the Eleventh Judicial District. All members of the county societies of Linn, Livingston, Carroll and Chariton counties, numbering 105, were enrolled as members without further payment of dues this year. Officers for the ensuing year were elected as follows: President, Dr. Haynie M. Grace, Chillicothe; vice-president, Dr. Harry W. Tull, Carrollton; and secretary, Dr. John L. Burke, Laclede. The next meeting will be held in Carrollton.—The Rolla District Society held its sixty-seventh meeting in Rolla, December 3. Dr. Edwin L. Hume, Bourbon, was elected president; Dr. James C. Welch, Salem, vice-president, and Dr. William H. Breuer, St. James, secretary-treasurer.—At the annual meeting of Jackson County Medical Society, held in Kansas City, December 1, the following officers were elected: President, Dr. Franklin E. Murphy; vice-president, Dr. Eugene Carbaugh; secretary, Dr. Halsey M. Lyle; treasurer, Dr. William M. Reed; censors, Drs. Scott P. Child and Frederick T. Van Eman, and delegates to the state society, Drs. George B. Norberg, Charles C. Conover, Gordon A. Beedle, and Ernest F. Robinson, all of Kansas City.—At the annual meeting of St. Joseph-Buchanan County Medical Society, held December 9, the following officers were elected: President, Dr. John M. Doyle; vice presidents, Drs. Joseph W. Ferguson and John I. Byrne; secretary, Dr. Charles Wood Fassett (re-elected); treasurer, Dr. John M. Bell (re-elected); censor, Dr. Wallace B. Deffenbaugh; delegate to the state society, Dr. Clarence A. Good, and alternate, Dr. Emmett S. Ballard, all of St. Joseph.

St. Louis

Communicable Diseases.—During the two weeks ended December 26, there were reported to the health department 386 cases of communicable disease, with 60 deaths, distributed as follows: Erysipelas, 13 cases, 1 death; smallpox, 2 cases; diphtheria, 133 cases, 11 deaths; scarlet fever, 53 cases, 3 deaths; typhoid fever, 13 cases, 4 deaths; cerebro-intestinal fever, 3 cases, 1 death; measles, 56 cases; chickenpox, 27 cases; whooping-cough, 6 cases, 1 death; and tuberculosis, 60 cases, 39 deaths.

Election.—At the annual meeting of the St. Louis Medical Society, December 26, the election of the following officers

for the ensuing year was announced: President, Dr. Clarence M. Nicholson; secretary, Dr. Carroll Smith; members of the council, Drs. George Homan, Cyrus E. Burford, Robert M. Funkhouser and Henry C. Dalton; delegates to the state association, Drs. William W. Graves, John H. Amerland, John C. Morfit, George Homan, Thomas A. Hopkins, Herman L. Nietert, George C. Crandall and Vilray P. Blair; and alternates, Drs. Paul Y. Tupper, Walter Baumgarten, Walter C. G. Kirchner, Malvern B. Clopton, William E. Sauer, Frederick J. Taussig, Horace W. Soper and Jesse S. Myer. The proposition to increase the annual dues to \$10 was defeated by a vote of 261 to 163.

NEW YORK

New York City

Harvey Society.—Prof. J. B. Leathes of the Lister Institute of Preventive Medicine, London, England, delivers the seventh lecture in the Harvey Society course at the New York Academy of Medicine, January 9, on "The Relation of the Liver to the Metabolism of Fat."

Memorial.—A movement has been begun to erect a new surgical building for the Presbyterian Hospital as a memorial to Dr. Andrew J. McCosh. A committee has been formed to raise funds among his patients and those who knew him as a friend. Allen Appleton Robbins, 304 Lexington Avenue, is secretary and treasurer.

Cornell Medical College to be Remodelled.—Plans have been filed for remodelling Cornell University Medical College. The improvements include the elimination of the present two-story amphitheater for physic and chemistry demonstrations, and making over the space on the third floor into a students' laboratory and that on the fourth floor into the main pathologic laboratory.

Low Death Rate.—For the week ended December 26, there were reported 1,278 deaths, and for the corresponding week of last year 1,691, the respective annual rates being 15.07 and 20.59 per 1,000 of population. There was a falling off of almost 200 deaths in tenement houses. One year ago influenza caused 63 deaths; whereas this year only 2 deaths were caused by this disease.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended December 26, 384 cases of tuberculosis, with 135 deaths; 393 cases of diphtheria, with 37 deaths; 369 cases of measles, with 12 deaths; 281 cases of scarlet fever, with 17 deaths; 41 cases of typhoid fever, with 2 deaths; 28 cases of whooping cough, with 3 deaths; 5 cases of cerebrospinal meningitis, with 4 deaths; and 204 cases of varicella—a total of 1,705 cases and 210 deaths.

Hospital Reports.—The annual report of the Presbyterian Hospital includes the gift of \$1,000,000 from John S. Kennedy, although this gift was made after the close of the fiscal year. This magnificent sum is to be used for construction purposes and not to help out the current expenses. It is stated that the needs of the institution requires a larger expenditure than this. Architects are at work on plans for a new administration building. During the past year 43,220 persons were treated at the hospital, 210 more than the year before. The revenue for the year was \$347,710 and the expenses \$320,611. The actual hospital earnings were \$92,801, an increase of over \$8,000 over the year before.—The report of the Williamsburg Hospital shows a deficit of \$2,056 and a total indebtedness of \$10,294, and a committee of 100 citizens of Williamsburg has been formed to aid the institution.

OHIO

Personal.—Dr. J. Francis Coneffe has been appointed assistant physician at the Columbus State Hospital.—Dr. Darwin G. Palmer, Geneva, has been appointed to succeed himself as a member of the State Board of Health.—Dr. Joseph A. Hall, Cincinnati, has been appointed to succeed Dr. John E. Russell, Mt. Vernon, deceased, as a member of the commission for the construction of the Lima State Hospital.—Dr. Corlies Keller has resigned as assistant superintendent of Longview Hospital, Cincinnati, and Dr. John Batte has been appointed his successor.—Drs. Francis H. Williams, Howard C. Sellards, Edgar O. McCall and James B. Ray, trustees of Hempstead Hospital, Portsmouth, have resigned.—Dr. Henry C. Houston, Urbana, has been elected dean and Dr. Asa C. Messenger, Xenia, secretary of the medical and surgical consulting staff of the Ohio Soldiers' and Sailors' Orphans' Home.—Dr. Theodore Bunge, Cincinnati, has been appointed assistant coroner of Hamilton County, vice Dr. Oliver P. Coe, elected coroner.

PENNSYLVANIA

Fire in Asylum.—A small fire occurred in the State Hospital for the Insane at Norristown, December 25.

Contagious Diseases.—A case of smallpox was discovered in Harrisburg, December 18.—New cases of typhoid fever are reported in Reading daily, but the number of new cases is decreasing each day. Since November 18, when the epidemic began, 654 cases have been reported, with 26 deaths.

Doctors Warned.—According to instructions issued by the State Division of Vital Statistics, suits will be brought against physicians who fail to make proper returns of births and deaths in every county. Instances have been found in Lancaster and Chester counties, where physicians have been remiss and they will be prosecuted. The reports made to the state authorities are so inadequate as to cause considerable trouble and frequent returns for correction are made.

To Safeguard New-Born Infants.—To guard new-born infants against blindness, State Health Commissioner Dixon has revived the state law against this misfortune and will urge its enforcement. This law passed June 26, 1895, is entitled: "An Act for the Prevention of Blindness," imposing a duty on all midwives, nurses and other persons having the care of infants and also on the health officer and fixing a penalty for the neglect thereof." A letter has been addressed to the physicians of the state calling attention to the existence of the act and the intention to enforce it. Township health officers have been notified as follows:

Immediately on receiving notification from a midwife or nurse of the occurrence of a case of red or swollen eyes in a young infant you will inform the attending physician of the fact and will place in the hands of the midwife or nurse instructions from this department, explaining that she is to follow them only until a physician arrives to take charge of the case. If no physician has been employed you will urge upon the family the necessity for obtaining one, as otherwise the child may become permanently blind.

Philadelphia

Orphanage Quarantined.—On account of the prevalence of diphtheria, the Elkins Masonic Orphanage has been placed under quarantine by the board of health.

Land for Hospital.—The American Oncologic Hospital has purchased for \$47,500 a plot of ground 250x234 feet at Fiftieth and Chestnut streets, on which to erect new hospital buildings. The cost of the new buildings will be more than \$100,000.

Anti-Noise Crusade.—Orders have been issued by the police department to arrest on sight any person or persons who, directly or indirectly, are responsible for undue noises and disturbances in the vicinity of hospitals. Warning signs are to be placed about hospitals: "Preserve Peace and Quiet."

Medicine for the Poor.—The Bureau of Health, under the supervision of Dr. Joseph S. Neff, has planned to furnish medicines to the city's poor at cost, plus a minimum charge for compounding. It is the purpose of the department to establish druggists in every ward of the city where this service may be secured. The combined bids for the work, opened December 17, aggregated nearly \$10,000.

Officers Elected.—At the annual meeting of the North Branch of the Philadelphia County Medical Society, the following officers were elected: Chairman, Dr. George M. Illman; clerk, Dr. Samuel P. Gerhard.—At the annual meeting of the Section of Otolaryngology, the following officers were elected for the ensuing year: Chairman, Dr. Arthur W. Watson; clerk, Dr. Ralph Butler.

Philadelphia Academy of Medicine.—The newly formed Philadelphia Academy of Medicine was granted a charter by the Court of Common Pleas, December 24. The organization is intended to admit to membership physicians from all schools of recognized medicine. The following officers have been elected: President, Dr. George H. Wells; vice-president, Leon T. Ashcraft; secretary, Ralph Bernstein, and treasurer, Jacob W. Frank.

Tuberculosis Plans.—The Committee on Program of the International Tuberculosis Exhibit has prepared a tentative program. Dr. J. Clinton Foltz is chairman of the committee and its members are Drs. Alexander C. Abbot, Louis A. Duhring, Robert G. LeConte, Henry R. M. Landis, W. M. Late Coplin, John F. Roderer and Martin J. Brumbaugh. The opening day, to be officially known as Philadelphia Day, will be held February 15. Addresses will be delivered by the governor, mayor, director of public health and director of public education.

Tuberculosis Campaign Completed.—A comprehensive plan has been arranged by the committee in charge of the International Tuberculosis Exhibit to be held in this city from February 15 to March 15, for bringing close to the people the knowledge of how tuberculosis can be prevented and cured. A course of daily lectures has been arranged and representatives of every class of men and women will speak in a practical way of how intelligent warfare may be waged against the disease. Special talks are to be given also in Polish, Italian, German and Yiddish.

Typhoid Outbreak.—In the last week of the year 97 new cases of typhoid fever were reported in the city. Of these, 23 were reported from districts not supplied with filtered water, while 74 cases appeared in filtered water districts. Of the latter, 67 were reported from the Torresdale district, 4 from Roxborough, 1 from Belmont, and 2 from that portion of the Forty-second Ward supplied with water from outside the city. The cause of the outbreak is not known and the health authorities do not believe that the water is responsible for the appearance of the disease.

Health Report.—The total number of deaths reported to the bureau of health for the week ended January 2, aggregated 516. This is an increase of 42 over the previous week and a decrease of 172 from the corresponding week of last year. The principal causes of death were: Typhoid fever, 5; measles, 4; diphtheria, 14; consumption, 51; cancer, 18; diabetes, 4; apoplexy, 11; heart disease, 63; acute respiratory disease, 92; enteritis, 18; hepatic cirrhosis, 4; arterial sclerosis, 12; appendicitis, 8; premature birth, 13; congenital debility, 16; senility, 5; suicide, 5; accidents, 14; and marasmus, 3. There were 224 cases of contagious disease reported, with 20 deaths, as compared with 164 cases and 20 deaths reported in the preceding week.

Personal.—Dr. William W. Keen has been elected vice-president and Drs. George C. Stout and George McClellan have been elected to the board of governors of the University Club.—Dr. B. Franklin Royer has been elected a member of the staff of the State Board of Health.—Dr. Edward B. Gleason, for fifteen years clinical professor of otology, has been elected professor of otology in the Medico-Chirurgical College.—Dr. Thomas M. Rotch, professor of diseases of children in Harvard University, delivered an illustrated lecture in Jefferson Medical College Hospital, December 28, on "The Roentgen Ray as a Factor in the Enforcement of the Laws Relating to Child Labor."—Dr. Brooke M. Anspach has been made assistant in gynecology at the University of Pennsylvania.

VIRGINIA

Society Meeting.—At the annual meeting of Petersburg Medical Faculty, held November 20, Dr. J. Gordon Rennie was elected president; Drs. W. Preston Hoy and Joseph M. Burke, vice-presidents; Dr. Julian R. Beckwith, corresponding secretary; Dr. Leverette S. Earley, secretary-treasurer, and Drs. William H. Crockford, Franklin H. Hains, William E. Harwood, and Edwin J. Nixon, court medical.

Personal.—Dr. I. F. Lewis, professor of biology at Randolph-Macon College, has returned from Europe.—Dr. Emory W. Peery, Rural Retreat, sailed for Europe, November 28.—Dr. Albert S. Priddy, superintendent of the Southwestern State Hospital, Marion, has resigned.—Dr. George T. Myers, Norfolk, has been commissioned in the medical corps of the Virginia State Militia, and assigned to duty with Battery B, First Battalion, Virginia Artillery.

GENERAL NEWS AND COMMENT

Scientific Temperance Federation.—This organization held the second annual meeting at its headquarters, 23 Trull street, Boston, on December 8. The annual report summarized the outlook for the antialcohol movement from the scientific standpoint, reviewed the special investigations made, and the work accomplished by the federation in disseminating this and other information. The latter work is done largely by means of loan exhibits of colored charts and diagrams and stereopticon slides, aided by the federation's organ, the *School Physiology Journal* and its *Press Circular*.

Action on Animal Experimentation.—At the recent meeting of the American Association for the Advancement of Science, held in Baltimore, December 28 to 31, the following preamble and resolution were adopted:

From time to time attempts, fostered largely by erroneous statements and accusations and false sentiment and prejudice, are made in some parts of the country to enact specific legislation prescribing

ing the conditions under which experiments on animals may or may not be performed.

Animal experimentation has been of incalculable benefit to medical science and at the progress of which is absolutely dependent on experimental methods, as are all the physical and natural sciences.

No abuse of the practice of animal experimentation in the country has been shown to exist to warrant specific legislation relating to the general subject of prevention of cruelty to animals.

Resolved, by the American Association for the Advancement of Science that the unrestricted performance by proper persons of scientific experiments on living animals is essential to the maintenance and progress of medicine and biology.

Dr David Starr Jordan of the University of California was elected president of the association, and the next meeting will be held in Boston.

International Congress on Chemistry.—The Seventh International Congress of Applied Chemistry will be held in London, May 27 to June 2, 1909. The honorary president is Sir Henry Roscoe the active president Sir William Ramsay, William Macnab is general secretary and Thomas Tyler and C. Wightman are treasurers. Dr. Harvey W. Wiley, Washington, D. C., has been appointed chairman of the American committee. All who are interested in promoting the applications of chemistry are eligible for membership. The price of membership is one pound for men and fifteen shillings for women. Remittance may be made to Dr. Wiley, who will forward it. Those intending to present papers should write to the chairmen of the section to which the paper belongs. There are eleven sections; a list with names and addresses of chairmen, is obtainable from Dr. Wiley. Those who can not attend will be amply rewarded for membership by receiving the several large volumes of the publications containing the latest ideas and discoveries. The Proceedings of the Fifth Congress consisted of four volumes containing articles by experts on all branches of applied chemistry, the Proceedings of the Sixth Congress numbered seven large volumes.

Ankylostomiasis Among Recruits in the Southern States.—Captain Joseph F. Siler, Medical Corps U. S. A., has recently made a most interesting report to the Surgeon General of the Army on some observations made at the recruit depot, Fort Slocum, N. Y., to determine the existence and extent of ankylostomum infection among recruits. He had observed that the recruits from the southern states, notably Virginia, the Carolinas, Georgia and Florida, had, in the majority of instances shown a poorer degree of physical development than was the case of the recruits from the more northern states. It had been noted that the weight, chest development and general physique of these recruits, while seldom so poor as to cause rejection, had been noticeably below the general average. They appeared to be poorly nourished and slightly anemic, though marked symptoms of any kind were usually absent. During the past two months he examined the stools of nineteen recruits from southern states with the somewhat surprising result that it was found that sixteen out of the nineteen examined, or 84 per cent, harbored the parasite. Three of these cases were held up during the incoming physical examination as being suspicious of ankylostomum infection. The remaining sixteen cases were not specially selected but happened to be admitted to the hospital from time to time, suffering from vacuina and other minor complaints. In view of the large number of recruits drawn from the southern states, and the ease with which a cure may be effected in cases of ankylostomiasis, a circular letter has been sent to all medical officers calling their attention to Captain Siler's report and directing them to investigate the matter in the army at large and report the results of their observations.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 19, 1908

Consumption Made a Notifiable Disease Among the Poor

For some time there has been considerable discussion among those interested in public health as to whether tuberculosis should, like other infectious diseases, be made notifiable. The main objection is that if notification were adopted the unfortunate sufferer would be treated as a pariah and be unable to obtain work or household accommodation, while the sanatoriums for such a prevalent disease are quite inadequate for all who are affected. As in all public health matters the tendency, however, is toward increasing stringency of regulations and opinion in favor of notification is growing. Compulsory notification being impossible in the present state of the law, many municipalities have adopted voluntary notification, i. e. they request doctors to notify to the health officer under pledge of secrecy cases of tuberculosis under

their care with view to sanitary inspection and disinfection of the patient's residence. An important new departure has just been made by the local government board. An order has been issued to the local authorities which will come into force on New Year's Day. All "poor law cases"—persons relieved by the municipalities in consequence of their poverty—in which tuberculosis exists will be notifiable. The medical officer of a poor law establishment must within 48 hours of recognizing symptoms of the disease notify the district health officer of the case. In like manner a district medical officer must report a case in a patient whom he is attending at home. Further, the superintending officer of a poor law establishment must notify the place of destination of any person suffering from tuberculosis who is leaving the institution.

The Feeding and Medical Treatment of School Children

After a prolonged controversy, the London County Council has decided to devote £20,000 derived from the taxes for the provision of meals for underfed school children. Previously, meals have been provided for such children by charitable subscriptions, but these have been found inadequate. The question of the medical treatment of school children has also been under consideration. Certain recommendations of a special committee have been given in a previous letter.

King Edward's Hospital Fund for London

King Edward's Hospital Fund for London has received this year, after deduction of expenses, \$780,000 for distribution among the hospitals of the metropolis. This includes the munificent donations of \$500,000 from Lord Mount Stephen and \$50,000 from Lord Iveagh. The fund has allocated to the hospitals convalescent homes and sanatoriums for consumption \$700,000—an increase on last year of \$95,000. During the past 10 years the amount of the fund has steadily increased. Not only does the Fund distribute this large sum, but it also exercises, in virtue of its power of giving or withholding, a useful control over the expenditure of the hospitals. It has done much to promote the economical management of hospitals. It issues to its subscribers and to hospital officials an annual statistical report on the expenditure of the institutions which apply to it for grants. The hospitals are grouped in classes and the average expenditure per bed of each class on provisions, salaries, etc., is given. Those institutions which exceed the average cost per bed have then attention directed to economizing. In 1903 the total of these excesses amounted to over \$200,000 in 16 hospitals, where the average expenditure on the items dealt with was \$472. By 1906 this average had fallen to \$447—a saving of \$25 per bed on some 5,000 beds. In other groups of hospitals, particularly children's hospitals, a saving of as much as \$35 per bed was effected. The total saving from the more economical administration is estimated at from \$150,000 to \$200,000 per annum. The system of hospital accounts was also found to be faulty, and an eminent accountant, who is honorary auditor of the Fund, has devised a uniform system of accounts which has been adopted by all the hospitals which receive grants.

The Royal Society of Medicine

The Royal Society of Medicine, which has recently been formed by the amalgamation of the principal medical societies of the metropolis, has celebrated its first annual dinner, which was attended by the presidents of the Colleges of Physicians and Surgeons, the Director General of the Army Medical Service and men representative of science, literature, law and the government. The toast of the society was proposed by Mr. Burrell, Chief Secretary for Ireland, in a speech worthy of the occasion, illuminated by the wit for which the author of "Obiter Dicta" is famous. In replying the president, Sir W. S. Churchill, made a gratifying report of the progress of the society, which now numbers 2,215 fellows and 959 members and possesses a library of 100,000 volumes. The society is representative not merely of London but of the British Empire. Of the fellows and members 1,780 live in London, 1,174 in the provinces and 220 are scattered over the face of the world.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 17, 1908

Reform in Medical Studies

The authorities are now considering the reorganization of the medical curriculum, discussed in THE JOURNAL, Sept. 19, 1908, page 1023. The plan outlined fixes the length of the

period of study for the diploma of doctor of medicine at five years, exclusive of the preparatory year necessary to obtain the P. C. N. (certificate of physical, chemical and natural studies), instead of four years. It is proposed to keep a separate record-book for each student, in which examination marks, credits, diligence, etc., will be recorded. This book must be submitted at all examinations, under penalty of nullification of the results of the examination.

The course leading up to the degree of M.D. will comprise didactic, technical (laboratory), and clinical (hospital) instruction. The hospital course will be obligatory, nine months each year, during the five years of study. At the end of each course the student is to be examined by the chief of the service to which he is attached. Examination on practical studies will be held at the end of each of the corresponding courses of study, with a final yearly examination.

Free Medical Services for the Police

It has long been the custom in France to give the gendarmes and their families free medical attention. It is really not the gendarmes who profit by the generosity of the physicians, but the government, which ought to provide medical care for the police, as it does for soldiers. Up to the present, the war department has been accustomed merely to address a complimentary letter of thanks to the physicians who have for years attended the gendarmes gratuitously. Now, however, there is a movement among the medical profession against this exploitation of the profession for gratuitous services. Thus the medical syndicate of the Louhans district has unanimously decided that physicians are not bound to attend any public functionaries free of charge. The syndicate has accordingly informed the superintendent of police that free medical care will no longer be given to the gendarmes and their families. There is reason to believe that this movement will soon spread.

Regulation of the Sale of Eye-Glasses

At its last general assembly, the General Syndicate of French Oculists voted to ask for a modification of the law of 1892 on the practice of medicine; namely, that the diploma of doctor of medicine shall be required of those who fit convex, concave, cylindrical or spherocylindrical glasses by refraction; and that opticians be forbidden to sell eye-glasses, mounted in any kind of frame, without a physician's prescription. Everyone breaking the law will be subject to prosecution on that ground without prejudice to any prosecution for damages which a purchaser may institute for harm suffered from incorrectly fitted glasses.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 16, 1908.

Ernst von Leyden Foundation for Cancer Research and the Campaign Against Cancer.

Ernst von Leyden, still untiring as an organizer in spite of his 77 years, recently summoned a representative meeting of state officials, members of the German Central Cancer Research Committee, financiers and representatives of the medical and daily press to discuss ways and means to further the anticancer campaign. The meeting was held at his residence, and it was decided, on Orth's motion, to add to the present German central committee an executive board to collect a fund to support and enlarge the existing institutes for cancer research (in Berlin, Frankfurt a. M. and Heidelberg), and add to their number, the fund to be entitled the "Ernst von Leyden Foundation for Cancer Research and the Campaign Against Cancer." We may now expect a lively agitation in favor of this new measure, and our wealthy countrymen will see with alarm that there is already another call on their purses for benevolent purposes. To what extent the collection will be successful in these times of financial depression and of multiplied demands for social institutions remains to be seen.

The Chair of Physiology in Berlin

The chair of physiology is left vacant by the resignation of Professor Engelmann. My surmise that Rubner, until now professor of hygiene, would appear as a candidate for the place has become a fact. According to my information, there is the greatest probability that Rubner, to whom the chair of physiology has been offered, will accept the place. This change in his department of teaching would not be surprising, for Rubner's life work has been done especially in the field of physiology. Even the hygienic investigations that have

appeared from the hygienic institute under his direction have shown a strong physiologic stamp. There is a certain uneasiness regarding his successor in the chair of hygiene. Those investigators who are occupied with general hygiene and are not simply bacteriologists, are very thinly scattered throughout Germany, for nearly all hygienists have come from the school of Koch or of his pupils, and as Robert Koch can hardly be regarded as a general hygienist, but more especially as the representative of bacteriology, epidemiology, or the methods of control of epidemics, all his pupils are specialists in this field, but research regarding the hygiene of air, water, clothing, food, etc., has been carried on, at least in Prussia only, in Rubner's institute. There is danger, therefore, that Rubner's place will not be filled by a scientist who will follow his lead. The choice of a bacteriologist for the place is less important, since Berlin already possesses in the Institute for Infectious Diseases a model institution for bacteriologic research. Among the candidates, Professor Kirchner, a member of the medical department of the Prussian Ministry of Education, has been mentioned. He has been striving for a long time to reach a regular professorship in hygiene, but, although Kirchner has done good service in his present position, this has been in the direction of legal and governmental measures against epidemics.

In a scientific way he has accomplished practically nothing, and also as a teacher (he is professor extraordinary of hygiene in this university and teaches social medicine) his success is very small. The addresses which he has given in the Berlin Medical Society have been dry and monotonous. Personally, he is not popular even with his associates in office. From all these circumstances it is not strange that the newspaper mention of his name has called forth general opposition. Fortunately, the rumor appears to have no basis; at least so far as I can learn, neither the faculty nor the ministry approve calling Kirchner as the successor of Rubner; it is much more likely that Flügge, the Breslau hygienist, will be selected.

Death of von Rindfleisch

The noted Würzburg pathologist, Prof. E. von Rindfleisch, died December 6, at the age of 72. Two years ago he resigned his professorship, which he had held since 1874. Rindfleisch was one of Virchow's most important pupils until he became assistant in the physiologic institute at Breslau in 1860, and professor a year later. In the same year he was made professor in the University of Zürich, where he remained until 1865. He then went to Bonn, and from there in 1874 he went to Würzburg. His work was at first mainly in cellular physiology and pathology, but later he devoted himself especially to the study of tuberculosis. His most important literary work is his "Treatise on Pathological Histology." His "Elements of Pathology" is also very popular. With Virchow, he accepted the neovitalistic theory, which, as is well known, assumes the existence in the living organism of a special vital force outside of the physical and chemical forces. In this matter he took the side of his old teacher in the discussions between Virchow and Haeckel.

School Physicians for the Higher Schools

On this question, to which I referred in a previous letter, Professor Leubuscher, the director of the system of medical inspection of schools in Saxe-Meiningen, gave his views in an address delivered here a few days ago. In his opinion the objection that school physicians for the higher schools are superfluous, because in the better situated families a family physician is employed, is distinctly erroneous, as in his experience even in the higher schools diseases have been discovered by the school physicians which have escaped the notice of the parents and of the family physicians. Three defects especially are discovered in the higher schools: Short-sightedness, defective heart action and nervous and mental defects.

The first, as well as the third of these defects, is connected, according to Leubuscher, with school attendance and the consequent nerve strain. The pupils are overburdened. He claims that in order to attain the object of education the plan and methods of instruction, must be changed, the authorities cooperating with the school physicians. The classes should be arranged in the forenoon, so that the afternoon shall remain entirely free for the scholars' recreation and home work. It is further necessary to do away with the final test examination (Abiturienten-Examen). This change was demanded at the last congress for school hygiene by both physicians and educators. Weighing of graduates by the lecturer had shown that during the last six weeks before the examination they lost on an average three pounds in weight.

Pharmacology

Chemists' Certificates and Proprietary Medicines

Some time ago we pointed out that the chemists' certificate used by the exploiters of hydrocaine, "hyperoxidized hydrocarbon," did not furnish a correct statement of the composition of this nostrum. Recently we noted that the chemist's analysis on the label for urisepin did not correctly indicate the composition of that article.

The *Druggists' Circular*, October 19, editorially discusses the value which should be attached to chemists' certificates when used to exploit proprietary remedies. As an explanation of the disparity sometimes noted between the published analysis of proprietary medicines and the facts, a conversation overheard by the writer of the editorial is given. A manufacturer accosted a chemist, an old friend, in a breezy, hail-fellow-well-met way, and, during the conversation, incidentally remarked:

"By the way, professor, I'd like to have your certificate of analysis of my preparation."

"Certainly," said the professor, "I'd be glad to make an analysis for you, and I won't charge you much, either. Send me a package as soon as you like."

"Oh, never mind the price; I'll pay you well; and don't bother about the sample, either; I have a certificate of analysis here in my pocket", (producing it), "and all you need to do is to sign it."

The chemist looked straight into the eyes of the manufacturer for an embarrassing second, and then calmly informed him that he had selected the wrong man. The brazen manufacturer, not to be so easily silenced, retorted:

"Oh, come off, now; they all do it; you know they do, and you might just as well pocket the fee as to see it go to the next man."

Presumably the fat fee went into the pocket of the "next man," and no doubt the latter's name is now going all over the country in the advertisements attached to a certificate of purity which druggists and the public are expected to accept as if it were gospel.

As another kind of deception which tends to bring discredit to chemists' testimonials is mentioned the practice of publishing a certificate as to the quality of goods, written by a chemist who is connected with their manufacture, such connection being carefully concealed by the advertiser of the product. This form of deception has, as its counterpart, the practices of the manufacturer of proprietary remedies who has the degree of M.D. and who as a physician writes glowing articles as to the value of the remedy which he as a manufacturer sells to his "colleagues," the doctors.

The Formula for Glyco-Thymoline

UPPER JAY, N. Y., Dec. 5, 1908.

To the Editor:—Will you please inform me where I can find the formula for Glyco-Thymoline? M. E. PROCTOR, M.D.

ANSWER: We can not! Had "a" formula instead of "the" formula been asked for, we could have referred to various advertisements of this preparation. For instance, in the *Boston Medical and Surgical Journal* we find "a" formula as follows:

Sodium	24
Boric Acid	4
Benzoin	4
Acid Salicylic	0.33
Eucalyptol	0.33
Thymoline	0.17
Betula Lenta	0.08
Menthol	0.08
Pinl Pumillonis	0.17
Glycerin and solvents.....	q. s.

In the *Texas State Journal of Medicine* of the same date we also find "a" formula which varies to such an extent with other "formulas" that the editor of this journal, Dr. Chase, refused longer to carry the Glyco-Thymoline advertisement.

Benzo-Salicyl. Sod.....	33.33
Eucalyptol	0.33
Thymol	0.17
Salicylate of Methyl, from Betula Lenta.....	0.16
Pinl Pumillonis	0.17
Glycerin and solvents.....	q. s.

In the *New York Medical Journal* of December 5, there is "a" formula which is similar to the one in the *Texas journal*, except that it has added to it:

Menthol 0.08

Examination of the preparation in the chemical laboratory of the American Medical Association showed that it contained no boric acid, but instead borax; that salicylic acid was not present as acid, but as its sodium salt; that benzoïn instead of being present in comparatively large quantities, was practically absent, and sodium benzoate was in its place; that the compound "benzo-salicyl. sod." was absent, and there was instead, a mixture of sodium benzoate and sodium salicylate.

The results obtained in the Association's laboratory are corroborated by the work of Dr. J. Koehs (*Apotheker-Zeitung*, 1907, viii, 169). Dr. Koehs states that Glyco-Thymoline is an alkaline solution containing potassium carbonate, sodium benzoate, sodium salicylate, borax, thymol, menthol, glycerin and alcohol.

The published formulas, therefore, disagree, not only among themselves, but with the facts. When purchasing proprietary preparations with such fickle formulas, "you pay your money" for the preparation—and take your choice—of formulas.

Correspondence

The Medical Profession and John H. Rauch

CHICAGO, Dec. 19, 1908.

To the Editor:—I have read with a great deal of interest the communications from Dr. George Homan and Dr. J. F. Percy, appearing in *THE JOURNAL*, December 5 and December 12, paying tribute to the memory of John H. Rauch, and calling attention to the conspicuous work done by Dr. Rauch during the time of his connection with the Illinois State Board of Health. I was particularly impressed with the suggestion of Dr. Percy that the record of Dr. Rauch's great achievements be put in some permanent form by the Illinois State Medical Society, "of which he was an honorable and conspicuous member."

In their eulogies of Dr. Rauch, neither Dr. Homan nor Dr. Percy has exaggerated the importance of Dr. Rauch's work, nor the debt which the medical profession and the people of Illinois owe to him for the establishment of the sanitary, medical educational and public health affairs of Illinois on a sound foundation, and for the enactment and conscientious enforcement of the state's medical practice laws. The name of John H. Rauch was known, and the man revered, wherever the importance of sanitary science was appreciated, and it is very doubtful if the United States could have produced, at the time of the greatest activity of this noted sanitarian, a man who in his peculiar lines was his superior or even his equal.

But the recognition of meritorious service is frequently long delayed. The ingratitude of the people toward public servants is well-nigh notorious. The memorializing of the works of John H. Rauch by the medical profession or by the people of Illinois, comes so late, and is in such sharp contrast with the attitude toward him when he was serving the medical profession and the people, as to excite comment from those who are familiar with Rauch's career in public life.

Dr. Rauch has been dead for fourteen years. During his last few years he was crushed by the ingratitude of those he had so faithfully served. He died a broken-hearted man. According to the conventions of life, that was the time for memorials and for tributes; but even then they would have come too late to bring him consolation in the hour of his greatest need. The time for action by the people, by the medical profession, and by the Illinois State Medical Society, of which he was an "honorable and conspicuous member," was during the period when Rauch was being attacked and hounded by a thousand enemies, among the laity and the medical profession, too, enemies he made through his conscientious efforts to carry out the provisions of the medical practice act of Illinois.

It is a matter of common knowledge that Dr. Rauch was forced from his place on the State Board of Health on account of his activities in enforcing the medical practice laws as he thought they should be enforced, and it is generally known that for the same reason, he was compelled to resign the secretaryship of the board. The attacks on Dr. Rauch were not made from ambush nor from under cover—the newspapers of the day (1889-1891) contained the details of the battle, and the people and the medical profession were fully advised as to what those opposing him proposed to do. Yet few voices were raised in Dr. Rauch's defense, and no organized effort was made to support him. Regardless of the splendid service he had rendered, forgetful of his personal sacrifices in money, time and health, his untiring zeal, his wonderful knowledge and his recognized ability, Rauch was permitted to be unseated and discredited, while the medical profession and the people constituted themselves as interested spectators, without even raising a cry for fair play. Nor is it satisfactorily shown that members of the medical profession were not to be found in considerable numbers among Dr. Rauch's persecutors.

I can not resist the conviction that, had the medical profession manifested the interest in Dr. Rauch's support in his time of trial that they now do in memorializing his virtues and his greatness, the people of Illinois could have continued to avail themselves of his masterly service and counsel, and his life might have been completed without its tragedy.

It is true, as pointed out by Dr. Homan and corroborated by Dr. Percy, that "Illinois has not yet, in recognition of Dr. Rauch, her adopted son, done the amende honorable." But by the same token, it is questionable whether it is the consensus of medical opinion of the present day that reparation is due to Rauch's memory, or whether his presence on the State Board of Health was as deeply felt by the entire medical profession as it now appears to Dr. Percy. Indeed, it is but a short time since a prominent officer of the Illinois State Medical Society stated, in an address before several members of that organization, that "the State Board of Health had never been in touch with the medical profession of Illinois at any time," while another officer, almost as prominent, declared, at the same meeting, that "the relation of the organized medical profession and the State Board of Health has never been close as it should be." It is to be lamented that there could not have been a spirit of cooperation between the organized medical profession and the State Board of Health at the time that Dr. Rauch was compelled to pay a severe penalty for having conscientiously performed his duty—for having remained steadfast in his purpose to bring about better medical conditions in Illinois.

I am heartily in sympathy with any movement to impress on the present generation the splendid pioneer work of Dr. Rauch. The memory of Rauch will live in the minds of the sanitarians and educators of the nation as long as the Illinois State Board of Health shall live, for it was to this organization that Dr. Rauch gave the best of his creative genius, his most serious thought and his most intelligent efforts.

GEORGE W. WEBSTER,

President Illinois State Board of Health.

Illness of the Emperor of China

YALE MISSION HOSPITAL,
CHANGSHA, CHINA, Nov. 28, 1908.

To the Editor:—I send a translation of a document which has just come to hand, concerning the nature of the illness to which the late Emperor Kwang Hsu of China succumbed. It may be of interest to your readers to see the sort of statement that entirely satisfies the intelligent Chinese, and which would be an ample description of the objective symptoms in any given patient. How the failure to bring about the recovery of the emperor resulted for the attending physicians is reported in the newspapers which state that all the men whose names appear in the translated statement, "are degraded two steps in rank each, for having carelessly prescribed for his majesty the emperor," and in addition, five other physicians, all holding important medical posts in the government "are ordered to be cashiered for having carelessly

prescribed for his majesty, but are allowed to remain at their posts to redeem their errors."

"THE ILLNESS OF HIS MAJESTY THE EMPEROR KWANG HSU OF CHINA.

"The Edict of the Empress Dowager of China, on the 21st day of the 10th moon, 34th year of Kwang Hsu [i. e., Nov. 14, 1908], declareth:

"Beginning with the early fall of last year, and from that time on, the imperial person was unwell, and I therefore commanded the Tartar generals, the viceroys and the governors of each province to endorse and recommend physicians of skill. Subsequently there were received communications from the Tartar generals, viceroys and governors of Chih-li, Liang-kiang, Hu-kiang, Kiang-su and Chekiang, which were followed by their sending with endorsements Ch'en Ping-chün, Ts'ao Yuan-heng, Lü Yung-pin, Chou Ching-t'ao, Tu Chung-chün, Shih Huan, Chang P'eng-nien, and others, who came to the capital to institute treatment. But the remedies and treatment used by them have not been seen to be of avail as yet. Very recently, the yin and the yang principles [i. e., the natural forces, yin being the female element and yang the male element in Nature] have again been failing and his entire being has become diseased. His chest is filled up (dyspnea); his stomach is refractory; his trunk and limbs have been sore and painful; his appetite has gradually failed; whenever he moved or turned, his respiration has been embarrassed and coughing induced. In addition, he has had feelings of numbness, cold and alternating feverishness; at night he has been unable to sleep; his spirits are utterly exhausted, and it is with difficulty that he continues to live at all.

"My heart has therefore been deeply concerned and even excited, and I again commanded the officials of all the provinces to pick out and recommend physicians of wide experience and training, whether holding official appointment or not, and to send them in great haste to the capital to attend his majesty and to institute treatment. If they had been able to accomplish any improvement, then I should have rewarded them in the highest degree, and also recognized with favor the kindness of those who recommended them.

"Let this be proclaimed widely as an imperial edict."

It is to be hoped that the new era which will be ushered in with the passing away of the remarkable woman, the Empress Dowager, will see new impulse given to the study of scientific medicine in China. The field is immense.

Allow me to add a word as to my personal appreciation of THE JOURNAL. I wish we had your help in the fight against "patent medicines" in China. It is a question whether or not the opium habit was much worse than the habit, now being contracted, of using limitless amounts of "patent medicine" with high-colored labels on the bottles and high-sounding words in the accompanying circulars.

EDWARD H. HUME.

Defects of Esperanto as an International Language

NEW YORK, Dec. 8, 1908.

To the Editor:—A letter recently appeared in THE JOURNAL greatly extolling Esperanto. Please allow me, as an expert on this language, to present the other side of the question. Esperanto is not fit for an international language because it contains too many intrinsic defects.

1. The alphabet of Esperanto contains letters not possessed by any printing press and therefore rendering very expensive the publication of Esperanto works (ĉ, ĝ, ĥ, ĵ, ŝ). The use of an h instead of the "roof" is not genuine Esperanto and renders the language more hideous to the eye than it is now.

2. Esperanto, especially in every-day phrases, has an abominable sound due to the great frequency of the harsh sibilants (ĉ) and of the endings aj, oj, uj. Almost unpronounceable sounds (ĥ) and combinations (sc) also occur, such as *ĉio tio ĉi*, "all this"; *ĉiujn tiujn kiujn*, "all those whom."

3. Esperanto is very illogical in its word-formation. Here are a few examples: *Kuraĝa*, "courageous," forms the noun *kuraĝo*, "courage," while the similar adjective *brava*, "brave," derives the noun *braveco*, "bravery." From the verb *kombi*,

"to comb," the instrument *kombILO*, "comb," is derived, while to the similar verb *broŝi*, "to brush," belongs the noun *broŝO*, "brush," as the instrument. *IrADO* from *iri*, to walk, means "continued walking," while *fosADO* from *fosi*, "to dig," means "digging," without any idea of continuation or duration.

The philologic absurdities of Esperanto have been incontestably demonstrated by Dr. L. Couturat in his excellent study, "Étude sur la Derivation en Esperanto." The reader is referred to this work for other innumerable examples.

4. The vocabulary of Esperanto is lacking in internationality. The most frequently occurring words are entirely arbitrary and render the language unintelligible without previous study even to expert linguists, who read and understand other artificial languages almost at sight.

5. Esperanto is extremely poor in root words. This has led to the adoption of many idiotisms and of absurd compounds, as the verb *el-paroli*, which ought to mean "to speak out," but is used for "to pronounce."

6. Owing to the introduction of the accusative case with extremely frequent application, and to the declension of the adjective, which is changeable according to case and number, Esperanto is too difficult for persons of average education and especially of English nationality. Most Esperantists of this country, after having devoted several years to the study of Esperanto, are unable to write a few lines correctly or to speak the language.

That Esperanto is not fit for an international language has been proclaimed by the Committee of the Delegation for the Adoption of an International Auxiliary Language. This committee, composed of great scholars of international renown, convened at Paris in October, 1907, and rejected all artificial languages, Esperanto in its present form included. It adopted, however, a system presented by Marquis L. de Beaufront, the greatest authority on Esperanto, its inventor not excluded. This system, subsequently perfected and enlarged by the Constant Committee of the Delegation, is now known chiefly as Ilo, which means "international language" by its initial letters. Ilo is as much superior to Esperanto as the latter is to the defunct Volapük. It is not simplified Esperanto, for it has in common with the latter only a part of the conjugation, the ending of noun, adjective and adverb, and a few affixes. Everything else in Ilo is common to almost all modern artificial languages.

The New York Esperanto Society, the pioneer society in this country devoted to an international language, at its meeting of October, 1908, adopted Ilo, and at the November meeting the resolution was passed unanimously to assume the title "New York Ilo Society."

Evidently Esperanto is already undergoing the same fate as Volapük. But the Esperantists spread all kinds of false reports about Esperanto's "wonderful" growth. One "fidelulo" speaks of 55 Esperanto journals, not mentioning those that have long disappeared, as the *Medicina Revuo*, etc. Another relates that "Esperanto is taught in the public schools of many lands." Fortunately for their pupils, it is merely a dream. Two thousand people in the United States are said to be speaking Esperanto fluently and correctly. A dozen would have been an exaggeration, and these have adopted Ilo, etc. But even if all these reports were true, they would not prove anything, for Volapük could really show such successes, and yet it died because of intrinsic defects. Esperanto is following it into oblivion for similar reasons.

DR. MAX TALMEY.

Founder and first president of the New York Esperanto Society, now New York Ilo Society.

Dangers in Food Adulterations

PHILADELPHIA, Dec. 31, 1908.

To the Editor:—Food Inspection Decision 101, of the United States Department of Agriculture, states that "The department has not charged the position outlined in Food Inspection Decision 89. Pending the determination by the referee board of the wholesomeness or unwholesomeness of benzoate of soda, its use will be allowed under the following restrictions: Benzoate of soda, in quantities not exceeding 0.1 per cent., may be added to those foods in which generally heretofore it has been

used. The addition of benzoate of soda shall be plainly stated on the label of each package of such food."

Food Inspection Decision 102 of the same department, signed by three cabinet officers, Messrs. Cortelyou, Secretary of the Treasury; Wilson, Secretary of Agriculture; and Strauss, Secretary of Commerce and Labor, states that "until further notice, vegetables greened with copper salts, but which do not contain an excessive amount of copper, and which are otherwise suitable for food, will be allowed entry into the United States, if the label bears the statement that sulphate of copper or other copper salts have been used to color the vegetables. Food Inspection Decision 92 is amended accordingly."

These decisions, as every practising physician must know, are fraught with great danger to the public health. There is considerable difference between the effects of any poison or irritant given in a few experiments in the laboratory, and those of the same poison taken continuously over long periods, even in small quantities.

I have not the slightest doubt that sodium benzoate (and especially the commercial of synthetic sodium benzoate) taken in foods more or less continuously, will derange digestion and set up irritative and degenerative changes in the gastro-enteric mucosa. Similarly, I have no doubt that copper salts will cause chronic nephritis and it is possible that pathologic changes in the blood and in the nerves may also be originated in this manner.

If the medical profession is to make its voice heard in defense of the public health, and if the Food and Drugs Act is not to be nullified by "interpretation," it is high time that a flood of indignant protests from medical men throughout the United States shall sweep in on the secretaries of the Treasury, of Agriculture, and of Labor and Commerce.

S. SOLIS COHEN.

[COMMENT: We heartily endorse the appeal of Dr. Cohen to the medical profession to protest against these decisions, which, we understand, were adopted against the protest of Dr. Wiley.—ED.]

Graduate Work in the Elementary Branches

To the Editor:—In common with thousands of other middle-aged practitioners, I have often felt the need and lack of up-to-date knowledge in the primary branches of medicine, viz.: chemistry, physiologic chemistry, histology, pathology, and bacteriology. Like others, I read and continue to buy the latest editions of books on practice, surgery, obstetrics, gynecology, dermatology, etc. We read and partially digest these works until we are satiated with fact and theory, and difference of opinion. But we are conscious all the time that our ground work in the fundamental principles of medicine is sadly deficient as we received it twenty or thirty years ago. Most of us are so situated that we can not take the time for a year's work at school as it would necessitate giving up practice for that length of time, which means a loss of a good portion of it.

Now, with the proper text-books, a good microscope, and a small home-fitted-up laboratory, it would be possible for physicians, in leisure moments, to dig out much information, and especially when two or three could work together and could enlist the cooperation of some younger colleagues. I believe that this work would be very interesting and profitable, much more so than going over and over the same old things in the so-called higher branches.

The first and most formidable objection is that nearly all the text-books used are too complicated and difficult for the class of men under consideration. If there were a series of books more elementary than those advertised in the medical journals, or if some competent teachers would recommend a set of books which might be read before taking up the larger works, many physicians would be glad to take up these studies in their leisure time. If THE JOURNAL A. M. A., which gives us almost everything else under the sun which we can utilize in practice, could help us along this line I believe that the profession would be greatly benefited.

II. F. BALLARD, M.D., Cullom, Ill.

Book Notices

DISEASES OF THE NERVOUS SYSTEM. By Alfred Gordon, A.M., M.D., Associate in Nervous and Mental Diseases, Jefferson Medical College. Cloth. Pp. 487, with illustrations. Price, \$2.50. Philadelphia: P. Blakiston's Son & Co., 1908.

Since Dr. Gordon insists in the preface that he is presenting a practical work for the man in general medical practice, it is fair to judge his book from this viewpoint. Now a practical book, as we conceive it, must definitely offer the reader a working knowledge of its subject—and there arises a difficulty in discussing diseases of the nervous system. The diagnostic signs and symptoms are so often complicated and variable, as the result of the intricate mechanism involved, that a short and so-called practical statement of the facts too often leads only to bewilderment in diagnosis and so defeats its own purpose. The two-page large-type statement of the clinical findings in multiple sclerosis, for instance is so entirely inadequate, especially in the light of the well-known fact that in the great majority of early cases there is no development of the series of symptoms which Dr. Gordon says is constantly present, that it, together with many other of his chapters, has little actual practical value. The practical thing in nervous diseases certainly is to diagnose early and correctly, and that can rarely be accomplished through neurologic short cuts. On the other hand, one finds passages that are not as correct as they might be. "It is a remarkable fact that an aphasic preserves the power of singing" (p. 113) is certainly not to be taken in the universal sense of Dr. Gordon's words. The whole chapter on aphasia is neither so clear nor so free from debatable points as the expressed aims of the author's preface would warrant. The statement (p. 209) that in Friedreich's ataxia "the knee-jerks are abolished, but Babinski's sign is present," would be very misleading to the general practitioner who might find a case in which the reverse was true. And again the same might be said of the unmodified statement (p. 250) that reactions of degeneration in the muscles are characteristic of progressive muscular atrophy. The entire story of electric reactions, both normal and pathologic, we are sure from comparison with other works, might be told much more clearly and succinctly. We are afraid that Dr. Gordon set himself an inordinately difficult task and that it still remains a fact that the larger works on nervous diseases are the most practical, especially for the man who knows least of the subject, and who therefore can not read between the lines.

A MANUAL OF OBSTETRIC TECHNIC. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital. Cloth. Pp. 253, with illustrations. Sixth Edition. Price, \$1.25. Philadelphia: J. B. Lippincott Co., 1908.

This book is practical, especially that part dealing with normal labors. The author differs from many authorities, however, in advising Cesarean section as practically a last resort. It is generally acknowledged that Cesarean section offers better prospects for both mother and child than the mutilating operations. Cooke emphasizes the difficulties attending the operation and states that it is necessary to have four assistants and two trained nurses. As a matter of fact, even in country districts, there are more men capable of doing an abdominal operation, and of assisting at one, than there are men able to do difficult obstetric operations through the vagina without seriously injuring the mother, and it is unfortunate that this author advises every young physician to carry a basiotribe.

MANUAL OF PSYCHIATRY. By J. Rognes de Fursac, M.D., Formerly Chief of Clinic at the Medical Faculty of Paris. Translated by A. J. Rosanoff, M.D., Second Assistant Physician, Kings Park State Hospital, N. Y. Second Edition. Cloth. Pp. 406. Price, \$2.50. New York: John Wiley Sons, 1908.

This belongs to the class of handy manuals in which no elaborate attempt is made to cover and illustrate the subject in all its aspects, but rather to convey a concise yet comprehensive view of the main facts of mental disorders. The principal changes from the earlier edition, besides a general revision of the text and the author's additions in the second French edition, are an extract from Prof. Adolf Meyer's paper on dementia præcox, and a number of notes by the transla-

tor, one of which is a description of the technic of lumbar puncture.

The first chapter, on etiology, is fairly full, though the subject is not treated at too much length, and one cause at least, that plays a part in American statistics of insanity, namely, isolation, is not mentioned. The omission is the more notable, as this cause is mentioned by other French authors, such as Regis, as of some importance. The section on symptomatology is very satisfactory, and that on examination of patients even more so, for a work of this kind. While the plan of history-taking is offered as incomplete and subject to modification, as in fact all such schemes must be, it would, if adopted as to its general plan, give an excellent case history, far better than the usual asylum records afford. The translator's notes on psychotherapy and after-care are timely supplements to the section on treatment. Fursac adopts in the main the ideas of Kraepelin as to classification, though he admits that the syndrome of dementia præcox is a rather indefinite one, and he also holds to the French conception of systematized delusional insanity. The descriptions of the special forms of insanity recognized cover the subject as well as could be expected in a work of this compass. The references to European (especially French) literature are numerous, but those to English and American writers are few. This, however, is so common in continental works on psychiatry as scarcely to be considered remarkable.

The translator has done his work well, both in giving a readable translation and in the bracketed additions to the text. There seem to be very few typographical errors; one, however, may be mentioned as rather notable—the reference to "Thomas D. Quincy's" description of the euphoria of the opium-eater.

ESTIMATION OF THE RENAL FUNCTION IN URINARY SURGERY. By J. W. Thomson Walker, M.B., C.M. (Edin.), F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England. Cloth. Pp. 273, with illustrations. London: Cassell & Co., 1908.

The first part of this volume is devoted to the estimation of the total renal function. The symptoms of failure of renal functions are considered and the examination of the urine described. Not only are the old chemical methods considered and their value estimated but such physical methods as cryoscopy, electric resistance and surface tension are fully described and their value estimated by Walker's experience and by the recorded experience of others. Walker values the methylene blue test highly. He says: "This test, I believe, is one which is more trustworthy than the quantitative examination of the urea or the appearance of general symptoms of renal inadequacy." He also attaches value to the phloridzin test. Nevertheless, he discusses and appreciates fully the limitations of the tests. The book contains many brief records of cases supporting the conclusions reached. The second part treats of the estimation of the function of one kidney. The history of the various methods is given and the best are fully described and illustrated. This book is well written and well illustrated. The subject-matter is of great importance, not only to the operating surgeon, for whom it is especially written, but to the practitioner who is selecting cases for the surgeon. The whole subject is adequately and judiciously considered.

SURGERY OF THE RECTUM. By Fred C. Wallis, B.A., M.D., B.C. Cantab., F.R.C.S., Surgeon to the Charing Cross Hospital. Cloth. Pp. 168. Price, \$2.00 net. New York: William Wood & Co., 1907.

According to the author's preface this little book "is intended to present the surgery of the rectum of the present day in a practical and condensed form to young surgeons and practitioners, who are," Dr. Wallis believes, "now beginning to take a serious and practical view of the ailments of this part of the body." The book is in reality an exceedingly exclusive and dogmatic presentation of the surgery of the rectum according to the views of Dr. Wallis, and these are, in some instances, peculiar. In the first chapter we find anorectal ulceration described as the "cause of fissure in ano. It is the cause of all ischio-rectal, pelvirectal, submucous and subtegumentary abscesses, and as a natural sequence, it is the cause of all fistulæ, which are, so to speak, the residue of these abscesses. All tubercular fistulæ and those extensive ulcera-

tions which proceed from them are due to the same cause." A little care in proofreading might have prevented the appearance of such paragraphs as the following: "Hemorrhage from the rectum is one of the worst forms of recurrent hemorrhage that occurs, because unless, sometimes, even when proper precautions have been taken, the hemorrhage continued steadily until quite an alarming amount of blood has been lost, and suddenly the patient shows signs of this and may rapidly die."

The statement on page 58 that the ultimate results of the ligature operation for hemorrhoids "are extremely good" is hardly consistent with that on page 62: "Recurrence is not an unusual thing after an operation by ligature. I do not say that if the operation is thoroughly carried out such a thing is likely, but in my own experience it is not uncommon for such recurrences to happen."

The book has a certain value, as has any report of personal experience, and parts of it are quite clear and to the point, but in view of the general carelessness of style, sweeping assertions and peculiar views on pathology displayed in its pages, it is not likely to take the place of any of the standard works on this subject.

A TEXT-BOOK OF BOTANY AND PHARMACOGNOSY. By HENRY KRAEMER, Ph.D., Professor of Botany and Pharmacognosy, and Director of the Microscopic Laboratory, in the Philadelphia College of Pharmacy. Third Edition. Cloth. Pp. 850, with illustrations. Price, \$5.00. Philadelphia: J. B. Lippincott & Co.

That the second edition of this book, which appeared but a few months ago, is now followed by the third, shows that the book has met with general favor. Professor Kraemer is known as a scientist who is thoroughly practical, and so this book, while distinctly scientific, is yet of great value to those interested in the study of crude drugs. Professor Kraemer's ideas in this matter may be gained from the following incident: At a recent meeting there was under discussion the definition of the word "drug." Professor Kraemer, when asked how he defined this word to his classes, stated that he and his classes were too busy to bother with definitions, that they just studied the many drugs and this kept them so busy that no time for the study of definition was left. In view of the wide use of powdered drugs, a chapter on the recognition of powdered vegetable drugs and foods is of especial value. In this chapter a comprehensive scheme for the recognition of unknown drugs is given.

THE ART OF NATURAL SLEEP. By LYMAN P. POWELL, Rector of St. John's Church, Northampton, Mass. Cloth. Pp. 92. Price, \$0.90. New York: G. P. Putnam's Sons, 1908.

The Emanuel Movement is responsible for a deluge of literature in the form of books, magazine articles and miscellaneous contributions to newspapers. While a lot of rubbish is appearing, a considerable portion of this literature is sensible and conservative, and therefore will do good rather than harm. Among the latter is this little book on insomnia and its treatment by suggestion. It is written for the layman; hence we ought not to expect to find—and do not find—in it much that relates to the basic physiologic facts underlying the cause of the condition when that cause is other than worry. The physician who has had fair, average experience in general practice will read of the remarkable cures recorded here with a sort of amusement—there are no failures, or practically none; it is all so very easy. Such a physician will realize the difference between treating those who come to one's library inspired with religious hope, emotional and receptive, and treating the average man and woman in the every-day frame of mind, and weighed down by great or petty care and discouragements.

LEITFADEN DER HYGIENE. Von AUG. GÄRTNER, O. Ö. Professor der Hygiene und Direktor des hygienischen Institutes der Universität Jena. Fifth Edition. Paper. Pp. 654, with illustrations. Price, 7.60 marks. Berlin: Verlag von S. Karger, 1909.

The fifth edition of this treatise retains the good points of the earlier editions and is well brought up to date. Gärtner's "Hygiene" is a good example of the compendious German handbook. It deals with all of the most important hygienic questions of the day and gives a well-balanced view of such problems as water-supply and sewage-disposal, the hygiene of dwellings, clothing and diet, school hygiene, industrial

hygiene, and the infectious diseases. Gärtner is of opinion that bovine tuberculosis is not one of the most important sources of human infection. In the section on methods for isolating the typhoid bacillus no mention is made of the malachite green medium which many recent investigators have found especially useful. Gärtner does not lay as great stress on the rôle of house-flies in spreading typhoid fever as most recent writers on the epidemiology of typhoid have done. A valuable glossary by Dieudonné of terms used in current discussions of immunity concludes the volume.

THE AIR AND VENTILATION OF SUBWAYS. By GEORGE A. SOPER, Ph. D., Member of American Society of Civil Engineers. Cloth. Pp. 244, with illustrations. Price, \$2.50. New York: John Wiley & Sons, 1908.

This volume is the outgrowth of studies carried on by Soper on the air of the New York subway. It includes a discussion of the characteristics of good air and bad air, the bearing of subways on health, methods of ventilating subways, the air of European subways, and especially the air of the New York subway and the health of New York subway employés. It is in the main clearly and accurately written, and is a valuable contribution to the subject of which it treats. Occasionally a somewhat loose statement is noted, as on page 77, where the death rate among the employés in a London subway is compared with the death rate for the whole London population. Soper concludes his own thorough study of the conditions in the New York subway with the statement that the most objectionable feature of the air was the dust, which consisted chiefly of angular particles of iron. No direct injurious influence, however, on the health of the employés could be traced, perhaps because the subway had been in operation but a short time when Soper's observations were made.

CLIMATIC TREATMENT OF CHILDREN. By FREDERICK L. WACHENHEIM, M.D., Chief of Clinic, Children's Department, Mount Sinai Hospital Dispensary, New York. Cloth. Pp. 400. Price, \$2.50. New York: Reiman Co., 1907.

We are not aware that there is as yet any other treatise on this subject; the present work is a worthy pioneer. Wachenheim has condensed a vast amount of information on the important subject of climate into a manual which will prove generally serviceable to others as well as to the pediatricist. A general bibliography, a list of authors quoted and a carefully detailed index add materially to the value of the book.

USE AND CARE OF THE MICROTOME. Bausch & Lomb Optical Co., Rochester, N. Y. Paper. Pp. 32. For gratuitous distribution.

This little booklet is worth the attention of the user of the microtome. The descriptive matter and the advice are interesting and valuable.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

ADDRESSES OF FOREIGN WRITERS ON DEMENTIA PRÆCOX

MARION, OHIO, Dec. 26, 1908.

To the Editor:—1. I am desirous of learning the correct names and addresses of the following men: A. Gialelli, Kraepelin, Stransky, Freud, Bleuler, Neisser, Masselon, Meyer, Marro. All these men have written on the subject of dementia præcox and I am anxious to communicate with them.

2. Is there any directory which will give me the addresses of foreign physicians who are quoted in American journals?

CARL W. SAWYER.

ANSWER.—1. The following are some of the addresses desired:
Dr. A. Giannelli, Manicomio di S. Maria della Pietà, Rome, Italy.

Adolph Meyer, Pathological Institute, Office, Ward's Island, New York City.

Dr. E. Kraepelin, University of Heidelberg, Germany.

Dr. S. Freud, University of Vienna, Austria.

Dr. E. Bleuler, University of Zurich, Switzerland.

Dr. E. Stransky, I psychiatrische Klinik, Vienna, Austria.

Dr. R. Massalongo, University of Padua, Italy.

Marro, we are unable to identify. Antonio Marro has written on psychiatry. A letter would probably reach him through his latest publisher, Schleicher frères, Paris.

2. The addresses of authors are given in the foreign journals as in those of the United States. Lacking this information, one will find of service the following books (obtainable through any bookseller who handles foreign works):

"*Biographisches Lexikon*," published for \$8.00 net, by Urban and Schwarzenberg, 38 Dorotheenstrasse, Berlin, N. W., Germany.

"*Minerva Jahrbuch der Gelehrten Welt*," by Dr. Karl J. Trübner, Strassburg, Germany; price, \$3.50.

"*Spemanns goldenes Buch der Gesundheit*," published by W. Spemann, Berlin.

For an occasional communication one may enclose a letter to one of the scientific information bureaus in Berlin or Paris, enclosing an international exchangeable postage stamp coupon, requesting the bureau to forward the letter to the addressee. One should give sufficient information for the identification of the one it is desired to reach. THE JOURNAL occasionally receives such a letter from abroad with the request that we supply the address and forward it. The information bureaus referred to are:

Die ärztliche Auskunft im Kaiserin Friedrich-Hause,
2 Luisenplatz, Berlin, N. W., Germany.

Bureau de renseignements scientifiques, à la Sorbonne,
Paris, France.

Both have been written up in the news columns, the latest description having appeared Oct. 3, 1908, page 1167.

CORSET FOR GASTROPTOSIS—NO-LOOP METHOD FOR GASTROENTEROSTOMY

HOLLYWOOD, CALIF., Dec. 6, 1908.

To the Editor:—1. Please describe Landau's corset and pad attachment for gastroptosis referred to in Boas' "Diseases of the Stomach," page 343.

2. Where can I find a description of the no-loop method of gastroenterostomy referred to by Dr. Mayo in THE JOURNAL, Aug. 15, 1908, page 557? A. B. C.

ANSWER.—1. Boas' "Diseases of the Stomach" gives the following description of Landau's and Bardenhauer's abdominal corset: The abdominal corset advanced by Landau and more or less suitably modified by others . . . consists of a heart-shaped tin plate which carries two springs connecting with an elastic belt. Practicable and applicable for all forms of displacement of abdominal organs is Bardenhauer's bandage. It consists of two springs enclosing the crests of the ilium and finding there support and resting place. These are connected at the symphysis by a spring. From this there radiate broad pieces of metal or whalebone inserted in the linen, leather or rubber parts of the band which are protected at the upper end with a belt. The appliance may be procured from dealers in instruments.

2. Dr. Mayo's no-loop method of gastroenterostomy was described in THE JOURNAL, Sept. 22, 1906, p. 912.

INFORMATION REGARDING TEACHERS ABROAD

OAKLAND, CALIF., Dec. 5, 1908.

To the Editor:—Can you give me the names and addresses of men in charge of clinics in London, Paris, Berlin and Vienna, with whom I may communicate regarding postgraduate work? J. L. LOUSE.

ANSWER.—Write to the following men in London, and to the officers of the Anglo American Medical societies on the continent:

London: Secretary of the London Post-Graduate Association,
West Wing, Examination Hall, Victoria Embankment, London.

Dean of the Northeast London Postgraduate College,
Tottenham, London, N.

Dean of the West London Postgraduate College, Ham-
mersmith Road, London, W.

Paris: Dr. Leonard Robinson, honorary secretary and treas-
urer of the Continental Anglo-American Medical
Society, 1 Rue d' Agnesseau, Paris, France.

Berlin: Dr. James H. Honan, President of the Anglo-American
Medical Association, 73 Lutzowstrasse, Berlin.

Vienna: Anglo-American Club Café Polyclinica, opposite Allg.
Krankenhaus, Vienna.

ILLUMINATION OF THE EYE

MICHIGAN CITY, IND., Nov. 3, 1908.

To the Editor:—I am conducting some experiments in both retinoscopy and ophthalmoscopy, and ask: Should the relative situation (both distance and angle) of lamp and mirror in indirect retinoscopy and ophthalmoscopy ever be changed? FREDERICK BOOTH.

ANSWER.—In indirect ophthalmoscopy the position of the light and the angle of reflection is immaterial so long as one is able to obtain the red reflex. The distance of the mirror from the eye, will, of course, depend on the refraction of the eye. In any event, both should be so placed as to obtain the clearest image of the fundus. In retinoscopy, the case is somewhat different; much depends on whether a plane or a concave mirror is used. If a concave mirror, the light should be placed just above the patient's head, and the examiner should sit directly in front of the patient at a constant distance of three feet. When using the plane mirror it is conducive to the best results to have the source of light as near the mirror as possible in order to obtain the greatest intensity of illumination. Since, however, the rays of light are always reflected in a direct line from a plane mirror regardless of the distance between the patient and the examiner, it is really immaterial what this distance is. In any case the angle of reflection need not be taken into consideration.

Association News

NEW MEMBERS

List of new members of the American Medical Association for the month of December, 1908:

ALABAMA	Garvin, M. L., Horse Cave.
Springfield, T. J., Ensley.	Grasser, E. T., Louisville.
ARIZONA	Gunn, J. S., Adairville.
Beauchamp, H. K., Phoenix.	Hill, J. W., Frankfort.
ARKANSAS	Kercheval, C. K., Ashland.
Bean, W. B., LaGrange.	Martin, W. W., Reynolds Sta.
Johnston, O. J. T., Floral.	O'Hara, C. D., Williamstown.
Scott, F. M., Paragould.	White, W. C., Louisville.
CALIFORNIA	LOUISIANA
Friedlander, David, San Francisco	Brock, J. L., Franklinton.
Lucchetti, V. F., San Francisco.	MARYLAND
Thompson, E. E., Sisson.	Barnes, F. M., Jr., Towson.
Weber, P. H., Winthrop.	Goldsborough, W. W., Greensboro.
COLORADO	Hooker, D. R., Baltimore.
Lockard, L. B., Denver.	Knight, L. W., Baltimore.
Moses, Homer C., Colorado Springs.	MASSACHUSETTS
Perkins, P. H., Colorado Springs.	Bossidy, J. C., Boston.
Tucker, Bernley, Colorado Springs.	Coffin, F. H., Haverhill.
DISTRICT OF COLUMBIA	Cutter, I. T., Boston.
Greene, W. P., Washington.	Dascombe, O. L., Waltham.
Lykes, R. A., Anacostia.	Derrick, J. S., So. Groveland.
Reede, E. H., Washington.	Howland, G. L., Boston.
FLORIDA	Vrooman, E. M., Cummington.
McDuffee, T. M., Manatee.	MICHIGAN
GEORGIA	Allen, T. R., Ionia.
Ansley, W. S., Decatur.	Benson, J. C., Flint.
ILLINOIS	Bradley, H. N., Bay City.
Brandon, P. E., Chicago.	Campbell, D. A., Detroit.
Dieckmann, Ernest, Herrick.	Corney, E. J., Durand.
Estel, G. A., Jacob.	Curtiss, W. L., Benton Harbor.
Ewing, J. B., Chicago.	Davison, R. J., St. Louis.
Hays, L. M., Chicago.	Felshaw, C. P., Holly.
Hunter, A. H., Staunton.	Freeland, O. H., Mason.
Kittermann, P. G., Chicago.	Gale, H. M., Bay City.
Lederer, Arthur, Chicago.	Gardner, S. E., Mt. Pleasant.
Montgomery, C. S., Stockland.	Gould, Jefferson, Fenton.
Morrill, E. S., Chicago.	Hill, H. C., Benton Harbor.
Parsche, T. W., Chicago.	Jenne, B. H., Otisville.
Taylor, J. L., Springfield.	Kelly, C. M., Grand Rapids.
Van Hageman, Silas, No. Chicago.	Lee, F. J., Grand Rapids.
Waterman, A. H., Chicago.	MacNaughton, P. D., Calumet.
INDIANA	McKinzie, J. C., New Buffalo.
Carter, Amos, Plainfield.	Parker, I. E., Dryden.
Custer, A. T., Linton.	Perry, H. E., Newberry.
Poster, D. W., Indianapolis.	Rothschild, Douglas, Rockland.
Gordon, C. W., Ft. Wayne.	Scott, W. A., St. Johns.
Harper, W. Q., Seymour.	Shaw, R. G., Detroit.
Kessinger, W. V., Sandborn.	Sibley, H. A., Pontiac.
Miller, L. C., Twelve Mile.	Surague, W. B., Palmyra.
Murphy, M. G., Morgantown.	Taylor, W. H., Flint.
Myers, C. L., Covington.	Westgate, C. H., Weston.
Robard, E. E., Shelburn.	Whitmore, R. C., Quincy.
Robinson, F. C., Martinsville.	Wiley, F. C., Pinebooy.
Told, H. J., Florence.	MINNESOTA
Wells, G. M., Indianapolis.	Blanchard, H. G., Waseca.
Whiting, U. G., New Harmony.	Dougherty, J. P., Wabasha.
IOWA	Johnson, C. H., Austin.
Leonard, A. H., Mitchellville.	MISSISSIPPI
Middleton, G. M., Davenport.	Chilton, C. M., Gunnison.
KANSAS	Glass, S. W., Dublin.
Miner, E. A., Independence.	Welch, B. Z., Wool Market.
KENTUCKY	MISSOURI
Creech, C. B., Middleburg.	Anderson, J. N., Conway.
Edwards, D. S., Ludlow.	Kimbrough, J. S., St. Louis.
	Lyman, H. W., St. Louis.
	Moore, W. L., Truxton.
	MONTANA
	Anderson, A. E., Butte.
	Shore, W. B., Gardiner.

THE PUBLIC SERVICE

VOLUME LII
NUMBER 2

NEBRASKA

Decker, R. F., Byron
Swoboda, F. J., Jr., Brainard.

NEVADA

Hamilton, G. B., Reno
West, F. M., Lovelock

NEW HAMPSHIRE

Buckley, J. J., Milton

NEW JERSEY

Graneli M. S., Hoboken
Lindenbaum, Henry, Hoboken
Mathews W. J., Hoboken
Pindt, D. B., Hoboken
Spath, G. B., Hoboken

NEW YORK

Adelson, Jonas, New York City
Fisher, R. H., Spencer
Geis, N. P., Brooklyn
Harrigan, A. H., New York City
Hirschfeld, C. H., New York City
McKeown, Patrick, Long Island
City
Scheimerhorn, J. R., Schenec-
tady
Schloss, O. M., New York City
Shaul, J. W., Keuka Park
Spradling, A. M., New York City
Squires, C. A., Binghamton

NORTH DAKOTA

Clark, Ira D., Harvey

OHIO

Biggs, A. L., Lorain
Fall, H. V., Custer
Groschner, C. B., Toledo
Hayford, H. S., Cleveland
Jacob, N. F., Whitehouse
Jacob, G. W., Savannah
Loewenthal, Noritz, Cleveland.
Parker, C. B., Gallipolis
Penberthy, J. P., Bryan
Semans, E. M., Delaware
Vigor, W. C., Plain City
Whisler, R. D., Benton Ridge.

OKLAHOMA

Murdoch, L. H., Okeene

PENNSYLVANIA

Alexander, I. Hope, Pittsburg
Bandy, D. R., Philadelphia
Binkmann, Leon, Philadelphia
Coulter, J. C., Mosertown
Dale, P. H., Center Hall
Davidson, A. J., Philadelphia
Davidson, W. J., McKees Rocks
Dubbbs, R. L., Philadelphia
Steel, J. M., Huntington
Stout, P. S., Philadelphia

TENNESSEE

Ehlen, W. H., Wind Rock
Hibblitt, J. B., Union City.
Mercedith, A. O., Pikeville
Patton, E. W., Litton

TEXAS

Brown, W. D., Texas
Hamilton, W. S., San Antonio.
Hays, A. R., Ft. Worth
Nichols, P. C., Sylvester
Russell, P. S., Batson
Walker, J. H., Sylvester.

UTAH

Calderwood, W. R., Salt Lake
City
Logan, Z. G., Ophih
Smedley, R. C., Salt Lake City.
Smith, R. J., Collinston
Wilcox, C. I., Salt Lake City.

VIRGINIA

Flazer, J. D., Za
Watts, S. H., Charlottesville

WASHINGTON

Edwards, J. W., Port Townsend
Lind, C. O., Seattle
Newell, R. I., Spokane.
Prencel, J. E., Spokane.

WEST VIRGINIA

Jackson, J. A., Ronceverte
Robertson, G. C., Clendenin.
Snider, O. H., Edgarton

WISCONSIN

Coon, G. E., Milton Junction

WYOMING

Phifer, F. W., Wheatland.

Lowndes, C. H. T., surgeon, orders to the Navy Yard, Mare Island Cal., revoked, ordered to continue treatment at the Naval Medical School Hospital, Washington, D. C.
Kindleberg, C. P., surgeon, ordered to the Navy Yard, Mare Island, Cal., and to additional duty in command of the naval medical supply depot

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine Hospital Service for the seven days ended Dec 30, 1908

Brooks, S. D., surgeon, granted 15 days' leave from Dec 26, 1908 on account of sickness
Stimpson, W. G., surgeon, detailed as member of a revenue cutter service jething board at Port Townsend, Wash., Jan 9, 1909
Oakley, J. H., P. A. surgeon detailed as member of a revenue cutter service jething board at Port Townsend, Wash., Jan 9, 1909
Cofel, L. E., P. A. surgeon, granted 7 days' leave from Dec. 21, 1908
Grubbs, S. B., P. A. surgeon, on expiration of leave, to proceed to San Juan, Porto Rico, for duty as chief quarantine officer, relieving Passed Assistant Surgeon M. H. Foster
Foster, M. H., P. A. surgeon, on being relieved by Passed Assistant Surgeon S. B. Grubbs, to proceed to New York, and report to the chief medical officer, Ellis Island Immigration Station, for duty
Foster, A. D., P. A. surgeon, granted 11 days' leave from Dec. 23, 1908
Collins, G. L., P. A. surgeon, granted 1 day leave Dec 27, 1908
Sweet, Ernest A., P. A. surgeon, directed to proceed to Boston, and report to medical officer in command for temporary duty
Fauntleroy, Charles M., asst surgeon, relieved from duty at Marine Hospital, New Orleans, and directed to proceed to New Orleans Quarantine Station for duty and assignment to quarters
Pieble, Paul, asst surgeon, orders directing him to report to medical officer in command at Baltimore, revoked. Directed to proceed to Stapleton, N. Y. and report to the medical officer in command for duty and assignment to quarters
Bowers, Paul E., acting asst surgeon, granted 7 days' leave from Dec 25, 1908
Wright, F. T., acting asst surgeon, granted 5 months' leave from Dec 23, 1908, without pay

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan 1, 1909

SMALLPOX—UNITED STATES

Arkansas: Texarkana Nov 22 28 3 cases
California: Los Angeles, Dec 5 12, 1 case, San Francisco, Dec 12 19, 1 case
Illinois: Belleville, Dec 13 20, 3 cases
Indiana: Lafayette, Dec 19 21, 1 case 1 death
Kansas: Topeka Dec 5 12 7 cases
Maine: Canadian Border, Dec 12 present
Mississippi: DeSoto Nov 1 Dec 22, 137 cases
Montana: Nov 24 Dec 15, 9 cases
New Hampshire: Hinsdale, Dec 23, 6 cases, West Chesterfield, 1 case; Westmoreland 1 case
Ohio: Cincinnati, Dec 11 18, 5 cases
Texas: Gonzales County, Oct 19, present, Laredo, Dec 26, 2 cases; San Antonio Nov 28 Dec 19, 6 cases
Washington: Spokane Dec 5 12 1 case
Wisconsin: LaCrosse Dec 5 19 4 cases, Manitowoc, Dec 12 19, 4 cases, Milwaukee, Nov 21 28, 3 cases

SMALLPOX—FOREIGN

Algeria: Algiers, Nov 1 30 20 deaths
Brazil: Bahia Oct 31 Nov 14, 51 cases, 2 deaths; Santos, Oct 1 31, 26 cases 11 deaths
Canada: Kingston Dec 5 12 2 cases
Ceylon: Colombo Nov 17 25 cases, 4 deaths
China: Shanghai Nov 14 21 present
France: Marseilles, Nov 1 30 1 death
Nantes, Nov 22 29, 2 cases
Paris Nov 21 Dec 5 6 cases 1 death
Italy: Florence, Nov 23 30 2 cases
Java: Batavia Oct 31 2 cases Nov 1 14, 2 cases
Malta: Nov 21-28 1 case on ship
Portugal: Lisbon Nov 28 Dec 25 1 case
Russia: Riga Nov 28 Dec 5 3 cases, St Petersburg Nov 17 24 6 cases, 4 deaths
Spain: Barcelona, Nov 27 Dec 5, 3 deaths

YELLOW FEVER

Barbados: Dec 29 2 cases 2 deaths
Brazil: Bahia, Oct 31 Nov 6, 1 death; Manaus, Nov 21 28, 2 deaths
Curaçao: Guayaquil Nov 21 28 2 deaths
Martinique: Port de France Nov 21 28 2 cases, 1 death
Mexico: Itzamal Dec 6 12 2 cases 2 deaths, Maxcann, 2 cases 1 death, Merida, 3 cases 1 death, Vera Cruz, 3 cases

CHOLERA

India: Rangoon, Nov 7 14, 6 deaths
Russia: General, Nov 7 14, 419 cases, 189 deaths

PLAGUE

Australia: Brisbane, Nov 17, 1 case
Brazil: Bahia, Oct 30 Nov 14, 3 cases, 7 deaths; Rio de Janeiro Nov 8 15, 7 cases 3 deaths
Curaçao: Guayaquil, Nov 21 28 1 death
Egypt: General, Nov 1 21, 7,416 cases, 5,569 deaths; Bombay, Nov 18 24, 5 deaths
Indo China: Cholon, Oct 18 24, 5 cases 7 deaths
Turkey: Bagdad, Nov. 7-14, 4 cases, 1 death

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers, U S Army, week ending Jan 2, 1909

Hartnett, E. H., capt., granted leave of absence for 4 months, with permission to return to the U S via Europe
Lewis, W. T., major, granted an extension of 10 days to his leave of absence
Hart, W. L., first lieut., granted leave of absence for 10 days
Humphreys, H. G., capt., granted leave of absence for 7 days
Reasoner, M. A., first lieut., ordered from San Francisco, to Fort Caswell N. C., for duty
Davidson, W. T., capt., sailed from San Francisco, for Manila, P. I., returning from leave of absence in U S
Pinkston, O. W., first lieut., granted leave of absence for 7 days
Rhodes, T. L., capt., leave of absence extended 2 months
Faulstich, P. S., major, ordered to Ft Benjamin Harrison, Ind., for duty, on return from Cuba
Church, J. R., major, ordered to rejoin proper station, Ft Robinson, Neb on return from Cuba
Allen, J. H., capt., ordered to Ft Montic, Va., for duty on return from Cuba
Berans, J. L., capt., ordered to A G H San Francisco, for duty with Co B, H. C., on return from Cuba
Thomason, H. D., capt., ordered to Ft Douglas, Utah, for duty on return from Cuba
Teft, W. H., capt., ordered to Ft Baker, Cal., for duty on return from Cuba
Hutsock, F. M., major, ordered to Ft Meade, S. D., for duty on return from Cuba
Johnson, R. W., major, ordered to St Louis to take charge of the medical supply depot at that city, on return from Cuba
Lemmon, Robert, M. R. C., when relieved from duty at Ft Caswell, N. C., ordered to Ft Howard, Md., for duty
Tyler, G. T., M. R. C., ordered from Ft Jay, N. Y., to Ft H. G. Wright, N. Y., for temporary duty
Anderson, E. A., M. R. C., ordered to accompany Third squadron, Fifth cavalry, from Ft Wingate, N. M., to San Francisco

Navy Changes

Changes in the Medical Corps, U S Navy, for the week end ing Jan 2, 1909

Biggs, R. E., P. A. surgeon, detached from duty with marines in Cuba and ordered home to wait orders
Biello, J. A., asst surgeon detached from duty with Pacific fleet, and ordered to duty at the Naval Hospital, Mare Island, Cal.
Duhigg, J. T., asst surgeon, detached from the Navy Yard, Mare Island, Cal., and ordered to duty with the Pacific Torpedo Fleet

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Jan. 12. Secretaries: Regular, Dr. F. T. Murphy, Brinkley; Homeopathic, Dr. P. C. Williams, Texarkana; Eclectic, Dr. A. J. Widener, Little Rock.
DISTRICT OF COLUMBIA: Washington, Jan. 12. Sec., Dr. George C. Ober, 210 B. St., S. E.
ILLINOIS: Coliseum Annex, Chicago, Jan. 18-20. Sec., Dr. J. A. Egan, Springfield.
NEW MEXICO: Santa Fe, Jan. 11. Sec., Dr. J. A. Massie.
OKLAHOMA: Chickasha, Jan. 12. Sec., Dr. Frank P. Davis, Enid.
SOUTH DAKOTA: Sioux Falls, Jan. 13-14. Sec., Dr. H. E. McNutt, Aberdeen.
VERMONT: Montpelier, Jan. 12-14. Sec., Dr. W. Scott Nay, Underhill.
WISCONSIN: Milwaukee, Jan. 12-14. Sec., Dr. J. V. Stevens, Jefferson.

Medical Education and Nostrums, Second Letter

The following is the second of a series of letters issued jointly by the Council on Medical Education and the Committee on Medical Teaching of the Council on Pharmacy and Chemistry:

To Medical Teachers:—This letter treats of the conditions which, with your aid, we seek to remedy.

The prescribing of secret or semisecret remedies, pharmaceutical "specialties," and other mixtures of various types under fanciful names has become quite general. This thoughtless practice has led, directly and indirectly, to numerous and most serious evils. We would call your attention to the following:

Ignorant, Biased and Irresponsible Instruction: The physician has largely abandoned to pharmaceutical manufacturers his privilege and duty of prescribing. These manufacturers have gradually come to presume to advise us in therapeutics as well as in materia medica. It is obvious that such advice is not disinterested, and that it therefore is unreliable.

Therapeutic Progress Impossible: So long as the experience of clinicians is mainly restricted to nostrums of which they know little beyond the highly colored prospectuses of the manufacturers, therapeutics can not advance.

False Security: Dangerous drugs have been lauded by nostrum-makers under euphonious names which are not at all suggestive of their potent ingredients, and the physician is thus beguiled into the use of excessive amounts of dangerous and habit forming substances. Chloral, under the name of Bromidia; Acetanilid in the guise of Antikamnia, and many other poisons, are thus often used in dangerous, if not fatal doses, such as no careful physician would prescribe under their official names. With new products, manufacturers emphasize claims of superior safety which often do not survive a more extended experience. Heroin, Atoxyl and Isopral point a lesson worth learning.

Self-Medication: The prescribing of nostrums leads almost inevitably to self-medication. The patient usually learns the name of the nostrum prescribed, and thereafter buys it without further medical advice, and recommends it to his acquaintances who suffer from similar symptoms. The whole sequence of evils, of imaginary diseases, neglected ailments, drug additions, and fatal poisoning, etc., follows in natural order. The layman hesitates to tamper too much with a genuine prescription, but he has not the same wholesome fear of a ready-made preparation. Many of the so-called "patent medicines" of to-day were originally "ethical." Their use has been popularized by physicians.

Pseudoscience, arrest of progress, direct and indirect danger to the patients—these are the main evils with which the medical profession is confronted.

Indiana October Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination reports the written examination held at Indianapolis, Oct. 27-29, 1908. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 59, of whom 53 passed and 6 failed. Nine reciprocal licenses were granted at this examination. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
George Washington Univ.....	(1907)		88
Hering Med. Coll.....	(1908)		90
Rush Med. Coll.....	(1894) 80; (1908)		92
College of P. and S., Chicago.....	(1908)		82, 89
Chicago Coll. of Med. and Surgery.....	(1908) 80, 83,		86, 87
Northwestern Univ. Med. School.....	(1908)		82, 85
Illinois Med. Coll.....	(1908)		75
Hahnemann Med. Coll., Chicago.....	(1908)		83, 83
Indiana University.....	(1908)		79
Medical Coll. of Indiana.....	(1904)		85
Louisville and Hosp. Med. Coll. (1908)	75, 79, 80, 83, 83, 85, 90, 91		
University of Louisville.....	(1908) 85, 86, 87, 87, 89, 89, 90		
Kentucky School of Med....	(1907) 89; (1908) 77, 81, 83, 90, 90		
Kentucky University.....	(1906)		85, 90
Hospital Coll. of Med., Louisville.....	(1907)		86
Louisville National Med. Coll.....	(1908)		89
University of Michigan.....	(1908) 83, 88, 90		
University and Bellevue Hosp. Med. Coll.....	(1908)		94
Western Reserve University.....	(1908)		86
Medical College of Ohio.....	(1908)		89
Miami Med. Coll.....	(1906)		84, 90
Eclectic Med. Institute, Cincinnati.....	(1908)		81
Medico-Chirurgical College, Philadelphia.....	(1906)		91
Jefferson Med. Coll.....	(1863)		81

College.	Year Grad.	Per Cent.
Jenner Med. Coll.....	(1907)	68
Eclectic Med. Coll. of Indiana.....	(1908)	56
Louisville and Hosp. Med. Coll.....	(1908)	72
Kentucky School of Med.....	(1907)	71
University of Louisville.....	(1908)	60
St. Louis Coll. of P. and S.....	(1907)	63

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
Colorado School of Med.....	(1895)	Kansas
Bennett Coll. of Ecl. Med. and Surg.....	(1907)	Illinois
College of P. and S., Chicago.....	(1899)	Wisconsin
Rush Med. Coll.....	(1897)	Minnesota
Kentucky School of Med.....	(1906)	(1907) Kentucky
Medical School of Maine.....	(1897)	New Hamp.
University of Michigan.....	(1906)	Michigan
Meharry Med. Coll.....	(1901)	W. Virginia

Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 2-3, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Five reciprocal licenses were issued at this examination. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Cooper Med. Coll.....	(1906)		89.5
College of P. and S., San Francisco.....	(1908)		89.5
California Med. Coll., Eclectic.....	(1903)		82
College of P. and S., Los Angeles.....	(1908)		79.5
Western Reserve University.....	(1886)		87.8
University of Zurich, Switzerland.....	(1902)		84

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
Rush Med. College.....	(1900)	Wisconsin
Central Coll. of P. and S., Indianapolis.....	(1897)	Indiana
Minneapolis Coll. of P. and S.....	(1897)	Minnesota
College of P. and S., Baltimore.....	(1896)	Minnesota
College of P. and S., New York City.....	(1871)	Iowa

Rhode Island November Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Nov. 5-6, 1908. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 13, of whom 9 passed and 4 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Yale University.....	(1906) 80; (1907)		84.3
Baltimore Med. Coll.....	(1908)		83.1
Harvard Medical School.....	(1907) 84; (1908)		83.8, 90.3
Dartmouth Medical School.....	(1888)		80
Cornell University Med. Coll.....	(1903)		92.4
University of Pennsylvania.....	(1905)		89

College.	Year Grad.	Per Cent.
Baltimore Med. Coll.....	(1907)	69.1, 74.5
Tufts Coll. Med. School.....	(1908)	77
Laval University, Quebec.....	(1905)	53*

* Did not complete examination.

Miscellany

Method for Determining Age of a Blood Spot.—In a communication in the *Archives Gén. de Médecine*, March, 1908, A. Lecha-Marzo confirms the assertion of A. Florence that a drop of blood on a weapon can be examined as instructively under the microscope as if it were on an ordinary cover glass, if examined by strong artificial light. Even if the drops are invisible to the naked eye, the blood corpuscles stand out with their distinct outlines and characteristics. Three years ago Marzo called attention to the differential importance of crystals of iodo-hematin as a means of determining the presence of blood. Later he proposed a method based on treatment of the spot with chlorin water, pyridin and ammonium sulphate, to reveal the presence of hematin. In order to determine the age of a blood spot Tomellini uses a color scale made by letting drops of blood from a wound, bleeding both arterial and venous blood, fall from a height of about four inches on a white cloth, making all the drops of the same size. He then recorded the tint of the drops at the end of an hour, four hours, four days, a month, a year, etc. The sunlight was not allowed to fall directly on the drops. His color scale shows twelve types of tints giving the color of a drop of blood at different periods. Marzo has improved on this method as follows for still more exact determination of the age of a blood spot. When a spot of blood is submitted to him in a forensic case he compares it with the Tomellini table and notes the type with which it corresponds. At the same time he draws a drop of blood from his finger and deposits it on the cloth or article bearing the suspicious spot. The cloth or article is then placed in the spot whence it was taken and the former conditions reproduced as perfectly as possible. The fresh drop is then examined from time to time until its tint comes to approximate that of the type recorded, when the interval can be safely stated as the same as that between the first shedding of the blood and the discovery of the crime by the police.

Of course the findings are not mathematically correct, but they give an approximate of the truth which is liable to prove useful in some circumstances. The police must be instructed that the control blood spot has to be made under the same conditions as the primary spot, and consequently that it is important to have an unstained scrap of the linen or cloth brought for the purpose, and every effort made to reproduce the conditions of light or darkness, etc.

Gelatin as an Anesthetic and as a Hemostatic.—L. J. Facio of Buenos Aires publishes in the *Semana Medica*, Nov. 5, 1908, an account of a number of cases not only of aneurism, but also of other affections in which he was able to arrest the pain by daily subcutaneous injection of a small amount—not more than 25 c.c.—of a 1 per cent. solution of gelatin. The pain was constantly attenuated by the first injection, and disappeared completely after the second or third. With an aneurism the effect is more marked than that of morphin. In pleurisy, articular pains, progressive paralysis, etc., the effect was less pronounced than that of morphin, but it lasted much longer. There were no by-effects of any consequence observed in his experience, and the local pain is slight when these small amounts are injected. The anesthetic action occurs promptly and lasts for twenty-four hours at least, and sometimes for three days, or even longer. Chaput advocates the more extensive use of gelatin as a preliminary or supplement to operations to prevent or arrest hemorrhage. His communication was published in the *Bull. de la Soc. Méd. des Hôp. de Paris*, Nov. 26, 1908. Instead of opening the wound again in case of severe secondary hemorrhage he raises the part, raising the foot of the bed by 30 cm. after a laparotomy, covers the region with an ice bag, injects physiologic salt solution under the skin or into a vein, and then injects into the thigh 500 gm. of a 1 per cent. solution of gelatin. He relates a number of examples to show the remarkable benefit from this method. If the hemorrhage recurs, the wound must be opened, the clots removed, and the oozing vessels ligated, after the hemorrhage has been arrested by repeating

the above measures. He advises the use of gelatin in this way in every case of ruptured tubal pregnancy. If operative intervention becomes necessary, the patient is then in good condition for it. Marfan found gelatin useful, given internally, in a severe case of hemorrhagic purpura. Chaput explains the secondary hemorrhage as the result of liquefaction of the clot under the action of bacteria from without, possibly entering by way of the drain.

Italian Congress for Tropical Medicine and Hygiene.—One of the communications at this congress, held at Rome in October, was from Caccini, discussing the high mortality from tuberculosis among Italian immigrants at New York. He emphasized the necessity for lectures, in Italian, on hygiene and prophylaxis in the Italian quarters, where the immigrants can learn how to protect themselves against disease. Their ignorance of the language renders them unable to take advantage of the prophylactic measures already instituted in New York. Mozzetti related a recent interesting experience with vaccination in Abyssinia. There was danger of an epidemic of smallpox, and at the request of the native authorities he vaccinated several thousands, almost the entire population, with the usual technic. The native authorities, however, decided that this was not enough, and the people were vaccinated again by the customary method of variolization, inoculating pus taken from a smallpox patient. The inoculations, however, failed to produce the slightest disturbance or symptoms in the previously vaccinated persons, not one showing any effect from the variolization while all those previously unvaccinated developed the usual mild attack of variola. Nothing could have been more conclusive, and the people of Abyssinia, at least, are fully convinced of the magic power of vaccination, and the natives from the countries beyond are now asking for the animal lymph vaccine. Rosati called attention to the great danger in Italy from returning tuberculous emigrants. Between 600 and 700 return to Italy every year, and they are allowed to proceed unmolested to their former homes where they are liable to spread infection. He mentioned instances of places where tuberculosis had been unknown until thus imported. The congress adopted resolutions along these lines and adjourned to meet at Naples in October, 1909, when Prof. A. Celli will preside. Celli and Rho are the representatives of the society in the International Association for Tropical Medicine.

International Prevention of Criminal Abortion.—The French Obstetric Society, at its recent annual meeting, Paris, October 8 to 10, appointed a permanent committee to study ways and means to be suggested to the public authorities for the prevention of criminal abortion. The committee includes nine of the prominent obstetricians of France, besides the officers of the society, and Treub of Amsterdam, Bossi of Genoa, Guzzoni of Messina, and Keiffer of Brussels. Resolutions were adopted stating that, while it was not within the province of the society to discuss the subject on social, moral or religious grounds, yet it felt the urgent need for warning and calling attention to the great frequency and extreme gravity of the accidents consequent on criminal abortion, whatever the methods employed or the precautions observed. Statistics establish that in the large majority of cases long and serious local affections follow; that in two-thirds of the cases very serious affections develop, menacing life, entailing incapacity for work for months, years or permanently, and that the survivors are left infirm. Death usually spares women delivered normally at term, but carries off at once or not long afterward 6 per cent. of the women delivered by abortive practices. Recent statistics from the lying-in hospitals of the large cities show further that these practices destroy prematurely about a third of all the products of conception. The appeal for concerted action in this line was made by Bossi of Genoa, who delivered an address on the subject. Doléris, the president of the society, testified that at Paris 25 per cent. of the deliveries in the hospitals were the result of criminal abortive practices, and that the morbidity of the criminal abortions amounted to 66 per cent. and the mortality to 6 per cent. This discussion of prophylaxis against abortion was mentioned in the "Paris Letter," Nov. 7, 1908, page 1613.

Marriages

HARRY E. MOCK, M.D., to Miss Golda Taylor, both of Chicago, December 25.

JAMES A. LONG, M.D., to Miss Alice G. Rust, both of Frederick, Md., December 19.

JULIA C. BARROW, M.D., and Robert P. Eckles, both of Sardis, Miss., December 10.

JOSEPH M. ASHIER, M.D., to Miss Louise Teller Schlesinger, both of Philadelphia, December 21.

LEWIS C. SAMPSON, M.D., to Mrs. Ida Frances Gallagher, both of St. Joseph, Mo., December 24.

HENRY J. KOHLMANN, M.D., to Miss Phoebe Edna Skidmore, both of Brooklyn, N. Y., Sept. 4, 1905.

CLAUDE B. WILLIAMS, M.D., Elizabeth City, N. C., to Miss Rennie Buxton, of Jackson, N. C., December 23.

LLOYD EMERSON MATTER, M.D., Lake Geneva, Wis., to Miss Charlotte Grace Haines, of Chicago, December 24.

CHESTER A. WRIGHT, M.D., Cayce, Ky., to Miss Blanche Thelma Freeman, of Alexander, Ky., December 13.

FREDERICK M. BARNEY, M.D., U. S. Army, to Miss Isabelle D. Melville, of New York City, at Fort McHenry, Md., December 16.

STEPHEN ELLSWORTH SMITH, M.D., Grantville, Kan., to Mrs. Emma B. Moulton, of Holton, Kan., at Grantville, December 13.

Deaths

Alfred Russell Goodrich, M.D. Berkshire Medical College, Pittsfield, Mass., 1846; a member and in 1879, president of the Connecticut State Medical Society; formerly principal of the Deerfield, Mass., Academy; a member of the General Assembly of Connecticut in 1870; for three terms comptroller of the state, and for two terms state treasurer; president of the local school board for more than thirty years; a member of the board of health and a trustee of the public library; died at his home in Vernon, December 20, from senile debility, aged 90.

Isaac McClellan Tittsworth, M.D. Medical College of Ohio, Cincinnati, 1889; a member of the American Medical Association; and for several years president of the Jefferson County (Tenn.) Medical Society; for many years local surgeon at Mossy Creek, Tenn., for the Southern Railway Company; representative in the legislature in 1905; a member of the local board of U. S. Pension Examining Surgeons; died at his home in Jefferson City, December 20, from cholelithiasis, aged 56.

Francis Marion Morgan, M.D. Washington University, Baltimore, 1869; a Confederate veteran; physician to the Norfolk county jail; ward physician of Berkley and coroner for several terms; formerly surgeon to the Norfolk and Southern Road, and health officer of Portsmouth, Berkley and Brambleton; died at his home in Norfolk, Va., December 25, aged 62.

Benjamin C. Stevens, M.D. University of Michigan, Ann Arbor, 1873; a member of the American Medical and Kankakee Valley medical associations; once president of the Cass County (Ind.) Medical Society; for eight years county physician and for one term coroner; died suddenly from angina pectoris, at his home in Logansport, December 22, aged 58.

Samuel Hart, M.D. Bellevue Hospital Medical College, New York City, 1867; major and surgeon of the Sixty-third, Fifteenth and Seventy-fifth Ohio Volunteer Infantry during the Civil War, and at its close given the brevet rank of lieutenant-colonel; for fifty-six years a practitioner of Marietta, Ohio; died at his home, December 21, aged 78.

Joseph Bernard Anderson, M.D. Fort Worth (Texas) University, 1907; a member of the Oklahoma State Medical Association; for six months superintendent of Fort Worth Hospital, and later a practitioner of Enid, Okla.; died in San Antonio, Texas, December 14, from pulmonary tuberculosis, aged 35.

Arthur Sanford Cheney, M.D. Yale Medical School, New Haven, Conn., 1893; formerly a practitioner of New Haven, but for two years in the United States consular service, and American consul at Messina, Sicily; was killed in the earthquake which destroyed that city, December 29, aged 39.

Jacob Wilber Velie, M.D. Geneva (N. Y.) Medical College, 1852; one of the most valued members of the Chicago Acad-

emy of Sciences, of which he was successively secretary, curator and taxidermist; died recently at the home of his son, in St. Joseph, Mich., aged 79.

Frederick E. Maxcy, M.D. Medical School of Maine, Brunswick, 1879; a member of the Maine Medical Association and Medical Association of the District of Columbia; died suddenly at his home in Washington, December 25, from cerebral hemorrhage, aged 55.

I. Nutt Plummer, M.D. Medical College of Ohio, Cincinnati, 1872; a member of the Indiana State Medical Association; surgeon in the Army during the Civil War; died suddenly at his home in Shoals, Ind., December 23, from cerebral hemorrhage, aged 70.

Samuel Ramsey Seawright, M.D. Indiana Medical College, Laporte, 1849; coroner of Tippecanoe County, Ind., in 1882, and in 1893 president of the State Board of Health; died at his home in Lafayette, December 20, from senile debility, aged 84.

Frederick Lawrence Joyce, M.D. Harvard Medical School, Boston, 1903; for two years an interne in St. John's Hospital, Lowell, Mass.; but later a practitioner of San Francisco; died recently in Monrovia, Cal., from tuberculosis aged 30.

Samuel Reed Dunn, M.D. Jefferson Medical College, Philadelphia, 1867; health officer of Washington County, Miss.; formerly a member of the State Board of Health; died at his home in Greenville, December 20, from heart disease, aged 66.

Robert William Nelson, M.D. Jefferson Medical College, Philadelphia, 1846; a member of the Medical Society of Virginia; city physician of Charlottesville, Va.; died at his home December 22, from cerebral hemorrhage, aged 86.

Percy Eugene Eagan, M.D. Kentucky School of Medicine, Louisville, 1897; of Coal River, W. Va.; was struck by a train while crossing the railway track near that place, December 24, and died a few hours later, aged 34.

Bayard Taylor Wise, M.D. Ohio, 1850; of Indianapolis; surgeon of the Fifth Iowa Volunteer Cavalry during the Civil War; died in the Deaconess Hospital, Indianapolis, May 16, from cirrhosis of the liver, aged 73.

David C. Eisbein, M.D. University of Buffalo, N. Y., 1878; a member of the Medical Society of the State of New York; and a veteran of the Franco-German war; died at his home in Buffalo, December 24, aged 64.

Elijah Glendenning, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1865; a member of the Iowa State Medical Society; died at his home in Lineville, December 17, from pneumonia, aged 76.

Charles Allen, M.D. Georgetown University, Washington, D. C., 1861; for several years a ward physician of Washington, D. C., died from cerebral hemorrhage at his home, December 24, aged 73.

James Valorous Lewis, M.D. Geneva (N. Y.) Medical College, 1861; for 47 years a practitioner of North Norwich, N. Y.; died at his home, December 23, from pneumonia, aged 78.

James G. Wheeler, M.D. Cincinnati College of Medicine and Surgery, 1881; of Broughton, Ill.; died in the Evansville (Ind.) Sanitarium, December 18, from cancer of the stomach, aged 61.

James Ross Reed, M.D. University of Pennsylvania, Philadelphia, 1896; of Conemaugh, Pa.; died in Mercy Hospital, Pittsburgh, December 22, from pneumonia, aged 34.

John Kincaid, M.D. Philadelphia, about 1845; a practitioner of Rome, Ga., for more than fifty years; died at his home, September 5, from the effects of a fall, aged 86.

James Hollis Ward, M.D. Ohio Medical University, Columbus, 1901; of Columbus, Ohio; died at his home near Gananna, Ohio, December 25, from tuberculosis, aged 36.

Albert J. Tuggle, M.D. Atlanta (Ga.) Medical College, 1890; a member of the Medical Association of Georgia; died at his home in Lagrange, Ga., December 24.

John C. Bostick, M.D. Bennett Medical College, Chicago, 1881; an eclectic practitioner of Benton Harbor, Mich.; died at his home, December 29, from cerebral hemorrhage, aged 50.

Edward Ingham Wood, M.D. Albany (N. Y.) Medical College, 1865; died at his home in Stillwater, N. Y., November 27, from angina pectoris, aged 55.

Archibald C. Hoss, M.D. Jefferson Medical College, Philadelphia, 1875; died at his home in Jonesboro, Tenn., December 23, from pneumonia, aged 55.

Wendelle C. Boyd, M.D. Harvard Medical School, Boston, 1893; died at his home in Linneus, Maine, in August last, after an illness of two years.

Newton Sewell, M.D. Atlanta (Ga.) Medical College, 1881; died at his home in Tecumseh, Okla., December 25, from cerebral hemorrhage, aged 55.

Moses W. Caverly, M.D. Medical School of Maine, Brunswick, 1853; died at his home in Brentwood, N. H., December 23, aged 81.

August F. Volkmann, M.D. University of Halle, Germany, 1850; died at his home in West Baltimore, Md., December 18, aged 77.

Sigmund Bloch, M.D. University of Vienna, Austria, 1876; died at his home in Muskegon, Mich., December 19, aged 63.

Enoch C. Hartum (License, Ohio, 1896); died at his home in Rocky Fork, Ohio, December 21, from kidney disease.

Robert Boyd, M.D. Harvard Medical School, Boston, 1868; of Linneus, Maine; died in June last from nephritis.

Samuel Hood, M.D. London; died at his home in Crete, Ill., February 28, from senile debility, aged 92.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month

General Subject for the Month: Surgery of the Stomach and Intestines

FIRST WEEKLY MEETING

ANATOMY STOMACH

SURFACE MARKINGS.—Location of orifices, greater and lesser curvatures. Relations to wall when full and empty.

RELATIONS.—Above, externally, posteriorly, anteriorly. Cardia, fixation, relations. Pylorus, fixation, relations, relation to cardia. Greater curvature, length, relations, variations, blood vessels. Lesser curvature, position, relations, attachments, blood vessels.

LYMPHATICS.—(a) Lesser curvature, number, portion drained; (b) greater curvature, number and location of glands, portion drained; (c) fundus.

SMALL INTESTINES

SURFACE MARKINGS.

DUODENUM.—Length, position, shape, relations of each portion, peritoneal relations. Duodeno-jejunal fossa (Treitz).

JEJUNO-ILEUM.—Length, limits; diameters, thickness and vascularity in different portions; mesentery, mesenteric attachment of intestine, omentum. Intestinal wall, serous, muscular, submucous and mucous layers. Glands of mucosa. Blood vessels, superior mesenteric and branches. Difference in blood supply of stomach and intestines. Lymphatics and nerves.

LARGE INTESTINES

SURFACE MARKINGS.

CECUM.—Location, size, relations, types, peritoneal, relations, structures, ileocecal valve, Gerlach's valve.

VERMIFORM APPENDIX.—Location, developmental characteristics, length, size, structure, "abdominal tonsil." Mesosigmoid, shape, attachments, contents. Ligament of Clado, attachments, contents. Blood vessels, artery and branches, variations. Lymphatics: (a) Ileocecal into mesenteric glands, (b) ceco-appendicular into retrocolic glands, (c) through Clado's ligament in female. Nerves, localization of pain.

COLON.—Size, length, limits, fixation, portions, flexures, capacity. Characteristics, bands, sacculations, appendices epiploicae. Difference in structure from small intestine. Blood vessels, nerves and lymphatics.

Surgery of the Stomach

GASTRIC AND DUODENAL ULCERS

PERFORATIONS

PERFORATION OF GASTRIC ULCER.—Varieties: Acute, subacute, chronic. Diagnosis: Remote and immediate history, pain, shock, pulse, temperature, respiration, sweats, facies, vomiting, rigid abdominal muscles. Changing symptoms in reaction. Peritonitis later. Indications and contraindications for operation. Operation: Incision, closure of perforation, toilet of peritoneum, flushing, drainage, indications for gastroenterostomy. After-treatment, posture.

PERFORATION OF DUODENAL ULCER.—Acute or chronic. Direction of escaping fluid in acute cases suggests appendicitis. Varying pathology in chronic cases, encysted abscess, perforation of adjoining viscera, general peritonitis. Operation: Closure of perforation, or drainage.

REFERENCE BOOKS FOR THE MONTH

Moynihan: Abdominal Operations.

Kelly and Noble: Abdominal Surgery.

Keen: Surgery.

Bryant and Buck: System of Surgery.

von Bergman-Bull: System of Surgery.

Robson and Moynihan: Diseases of the Stomach and Their Surgical Treatment.

International Text-book of Surgery.

Dennis: System of Surgery.

Douglas: *Surgical Diseases of the Abdomen.

Gould: Operations on the Intestines and Stomach.

Bryant: Operative Surgery.

Grieg Smith: Abdominal Surgery.

Fowler: Surgery.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, Jan. 26.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

*Eighteenth Annual Meeting, held at Minneapolis,
Dec. 29 and 30, 1908*

The President, DR. W. W. GRANT, Denver, in the Chair

Officers Elected

The following officers were elected: President, Dr. A. L. Wright, Carroll, Iowa; first vice-president, Dr. J. F. Percy, Galesburg, Ill.; second vice-president, Dr. William D. Haines, Cincinnati, Ohio; secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. Omaha, Neb., was selected as the place for holding the next annual meeting; time, Dec. 20-21, 1909.

Value of Enterostomy in Intestinal Obstruction

DR. JOHN P. LORD, Omaha, Neb.: The general mortality after operation for intestinal obstruction is probably from 50 to 80 per cent. According to Elsberg, in only about 10 or 15 per cent. of cases entering Mount Sinai Hospital, New York, is the condition still to be considered a good one; and 54 died out of 100 patients entering three of the large hospitals in New York during 1906. The extreme conditions commonly met require too much anesthetic, too much surgery and too much time for successful surgical relief by the radical intervention too commonly resorted to. Until earlier diagnoses are made, and more prompt surgical intervention is resorted to, enterostomy by the Senn or Kader principles should be done to drain the toxic contents of the intestine and to stop the absorption of these ptomaines, although an effort should be made to relieve the effects of distention on the intestines, and its hindrance to respiration. It relieves conditions which, if allowed to continue, become rapidly fatal. It meets the indications without necessarily killing those who are extremely ill. It is not a last resort. Done in the modern way, it is not formidable, nor very objectionable, in the face of so serious an affliction. Inanition, formerly feared, skin

excoriation, and the necessity for a secondary operation, are all eliminated by the present methods. Liquid nourishment, stimulants and cathartics may be administered with valuable results. Irrigation and drainage and the use of the Moynihan tube may also be accomplished before the wound is closed, and may also be used to a limited extent afterward. The necessity for a radical secondary operation is sometimes obviated by this "tide-over" procedure, because of the subsidence of peritonitis, the consequent infiltration, the paralysis, and even the angulation which was due to over-distention; the improved results from this procedure justify its more extended use. It is not so formidable as to preclude its use by general practitioners, who have had hospital training and possess surgical instincts. The coming generation of physicians can be more depended on to make earlier diagnoses and to possess the skill to relieve most surgical emergencies. The mortality from intestinal obstruction is, therefore, to be lowered in the near future.

DISCUSSION

DR. WILLIAM D. HAGGARD, Nashville: I think if we would heed the lesson of this paper, we would be able to transfer some of the desperate cases from the death class to the live class. There is not a surgeon who has not had the mortifying experience of a tremendously high mortality attending the hopelessly delayed cases of intestinal obstruction. If we can operate on these patients quickly under local anesthesia, by enterostomy, I am certain that we will be able to save a larger proportion of them primarily.

DR. J. F. PERCY, Galesburg, Ill.: In 1902 I opened the abdomen of a physician's son in a case of delayed appendicitis. I did it at the request of the young man, and I found there the condition that is embraced in the title of this paper—a condition where everything was black, and I recognized that there was something besides opening the abdomen for drainage to be done in the care and cure of these patients. My next such patient, about a year afterward, was brought into the hospital in a moribund condition. He was cyanotic. I directed my anesthetist to put cold water on the mask because the man was near dead, and I wanted one or two members of the family in the room, so that if he died on the table there would not be any question as to responsibility on part of the operator. I made a quick opening in the right iliac region and grasped the first piece of intestine that presented, fastened it, and opened it. The patient remained in a semiconscious condition for three weeks, but made an operative recovery. Two or three months afterward, when he became tired of the persisting fistula I operated and resected sixteen or eighteen inches of the intestine, after which he made a perfect recovery. I have had four cases of that kind since 1903, and all of the patients have recovered by that treatment.

DR. R. C. COFFEY, Portland, Ore.: The mortality from intestinal obstruction is doubtless 50 per cent. less than it was two years ago, and this is due to two or three things. First, the family physician recognizes that acute distension of the abdomen, which can not be accounted for in any other way, is to be looked on with grave suspicion. Second, we have learned that a paralyzed bowel, distended, in which ecchymotic spots are developed on the intestine above, is dangerous, and will not empty itself, even though the constriction is relieved. One of the most important things in dealing with these cases of intestinal obstruction is to keep everything possible out of the stomach, as in the Ochsner treatment for appendicitis, in order to prevent the formation of gas; second, the injection of fluids from below by Murphy's proctocleisis.

DR. F. GREGORY CONNELL, Oshkosh, Wis.: There can be no question as to the advisability of performing enterostomy in severe cases of intestinal obstruction. In a case in which there is obstruction of the bowel, and a laparotomy is done and the obstruction relieved, when shall we do enterostomy, and when shall we close the abdomen and allow the patient to get well? If enterostomies are done unnecessarily, the mortality rate will be higher than is necessary. This point should be emphasized, and I bring it up for the purpose of

receiving enlightenment. In cases of acute intestinal obstruction, we should emphasize the necessity of infiltration anesthesia, because of the danger of the patient drowning with the vomited matter on the table, in case a general anesthetic is used.

DR. JAMES E. MOORE, Minneapolis: When shall we do enterostomy, and when shall we do a radical operation in these cases of acute intestinal obstruction? We have to depend on the judgment and experience of the operator who has the case in charge. I think it would be equally objectionable to undertake to do radical operations in all these cases as to do enterostomy in all cases, because a fecal fistula is a very uncomfortable thing for the patient, and it does not enhance the reputation of the surgeon. Also, it will necessitate an operation later, which is not free from danger. At the beginning of surgery for this condition, the mortality rate from intestinal obstruction was stated by Treves to be 95 per cent., and yet there are men in every community who will treat these cases to-day just as they were treated in the days before Treves was born; they will wait, wait, wait, and their mortality rate is 95 per cent., just as it was many, many years ago. We will reduce the mortality of intestinal obstruction considerably by, first, operating in these cases early, and, second, by using advanced methods of technic.

DR. FREDERICK A. DUNSMOOR, Minneapolis: I wish to report briefly a case that is rather unique. The patient is a girl who has been operated on three times for obstruction of the bowel. I operated on her a year ago for acute appendicitis from which she made a good recovery. Six months later she was operated on again by a colleague in my absence for acute intestinal obstruction, which was perfectly relieved. Later, while skating, she was seized with pain, and was operated on, the operation disclosing obstruction at the upper part of the ileum, and by liberating bands and separating adhesions I was enabled to establish perfect patency of the intestinal tract. Two weeks later, I was called to see the girl again for obstruction of the bowels, with enormous dilatation of the entire small intestine. The intestine was filled with the same kind of fluid that has been described in cases of acute dilatation of the stomach. There were three quarts of this black fluid, which was largely made up of bloody substance at the time. I succeeded in establishing normal patency of the bowel, and while the patient is not in the best condition at this time, she is still alive. She has a fistula.

DR. A. L. WRIGHT, Carroll, Iowa: I wish to speak from the standpoint of a patient. In March I had my first attack of appendicitis. Within eight hours from the onset the appendix had ruptured, and I made arrangements to have it removed. The appendix was removed within fifteen hours from the onset of the first symptoms of any trouble in my right flank. Following the operation, I had septic ileus, and for four or five days suffering was intense; the abdomen had been packed open, but not until a ligature was placed about the appendix for closure did I get relief, which was prompt. I wish, therefore, as a recent sufferer, to urge opening up the bowel, if the patient is in such a condition that further operative interference is unwarranted, by using a sharp-pointed scissors and giving vent to the contents, as I think by so doing we will save a much larger percentage of these patients.

DR. CLIFFORD U. COLLINS, Peoria, Ill.: The remarks of Dr. Connell have raised a question in my mind with regard to the drowning of these patients in the fecal vomit. A few years ago, when Dr. E. Wyllys Andrews published his paper, I saw a case in which the material which came from the mouth was greatly in excess of any quantity that could be contained in the stomach. Probably under the influence of the anesthetic the pylorus became relaxed and a vast quantity of material was forced into the stomach by the combined pressure below. If that is the case, it occurs to me that washing out of the stomach as a preliminary to anesthesia would prevent that trouble. Since then I have operated on patients in the reverse Trendelenburg position, allowing gravity to keep the intestinal contents from escaping, and so far that trouble has been obviated.

DR. VAN BUREN KNOTT, Sioux City, Iowa: Enterostomy has lowered the mortality from intestinal obstruction, but it has by no means eliminated it. From the general trend of the discussion, it would seem that enterostomy in these cases, no matter how late it is performed, in the hands of a good surgeon, is a life-saving procedure. That is by no means my experience, I have had many cases in which enterostomy has been done, yet the patients have died just the same. While the mortality in my experience has been greatly reduced by enterostomy, it has not been done away with. Multiple enterostomy with drainage has proven valuable in my hands.

Abscess of the Brain

DR. W. H. MAGIE, Duluth, Minn.: I recently had two cases of brain abscess and here I desire to make a plea for a more thorough and systematic exploration of the brain in suspected cases. From the experience, observation and study of these cases, I am satisfied that, as a rule, the surgeon of ordinary experience is far too timid in his exploration of the brain in suspected abscess. These cases are absolutely hopeless unless the abscess is located and drained. Knowing this to be the fact, we are justified in undertaking almost any operative procedure in our efforts to locate and drain such abscesses. I remember the late Dr. Fenger demonstrating what he termed his systematic exploration of the brain for suspected abscess before the Section on Surgery and Anatomy of the American Medical Association at its session in St. Paul in 1901. I was surprised at the time with what seemed to me his reckless disregard for the brain. He used a skull to demonstrate his method, with numerous trephine openings, through which he introduced his trocar or aspiration needle, passing it first in one direction, then another, if pus was not found, until the entire hemisphere has been explored. I am now of the opinion that his method is the proper one, and that we are more apt to err on the side of caution than otherwise. I am determined that in future my exploration shall be sufficiently exhaustive that abscesses like the last two will not be overlooked, believing that exploration of the most searching character is not only justifiable, but demanded, in order that the lives of, at least, some of these unfortunates may be saved.

Indications for Obliterative in Contradistinction to Reconstructive Endoaneurismorrhaphy

DR. J. W. FRICK, Kansas City, Mo.: I believe that in the vast majority of cases the radical obliterative endoaneurismorrhaphy is the operation to be preferred for the following reasons: 1. The procedure is definite, thorough and radical. 2. No plastic work in diseased tissue is required, such work being notoriously uncertain. 3. In a majority of cases the sac configuration and intrasaccular conditions will preclude plastic work. 4. In reported cases, in which apparently either method might have been employed equally well, the obliterative method has been more satisfactory and shown greater freedom from untoward sequelæ, such as recurrence, hemorrhage, thrombosis, or gangrene. 5. A pathologic aneurism is a malignant degeneration in a vital structure. The diseased vessel can no longer be depended on and deserves obliteration. The technic of intra-aneurismal surgery resolves itself into several distinct essential steps: 1. Preliminary hemostasis. To accomplish this is more or less difficult, according to the situation of the aneurism. Esmarch compression of the main artery above, and temporary, direct compression above and below are variously used. A bloodless field is almost a *sine qua non*. 2. Free opening of the aneurismal cavity to permit a careful survey of the interior of the sac before deciding on the plan of procedure. 3. Intrasaccular suture of orifices. 4. Obliteration of cavity by sutures. 5. Closure and drainage. The after-treatment of these patients is usually simple, only one or two points being worthy of comment. The part operated on is best immobilized by some suitable fixed dressing in a position of relaxation. This prevents tension on the vessel wall longitudinally, and also allows free play for the establishment of a collateral circulation. Drainage should be removed early, as soon as its purpose is served.

DISCUSSION

DR. JOHN P. LORD, Omaha, Neb.: I was greatly interested in the work of Dr. Matas from the first, as well as in the work done by others, and have been looking for cases that were suitable for the Matas procedure. I have had two cases of popliteal aneurism, but when I came to consider the feasibility of treatment by this method, and began to look up the subject, I found that both of these patients were poor subjects for surgical exploitation. The arteries were generally sclerosed; the arterial tension was high, while the kidneys were not in a good condition. One patient was a man of 60. When one looks over the literature, he becomes impressed with the wisdom of John Hunter and the value of his procedure of ligation of the femoral artery. He is likewise impressed with its simplicity and the ease with which the operation is borne by the patient. I resorted to ligation in both of my cases, the patients did well, made good recoveries, and are still living. I am not fully convinced of the advantage of doing aneurismorrhaphy in all cases of popliteal aneurism. It does not appeal to me. I am still to be convinced of its desirability, as we know there have been failures and very anxious periods in the treatment after such an operation.

Subserous Appendectomy

DR. E. M. SALA, Rock Island, Ill., reported four cases in which he resorted to the removal of all the appendix except its serous coat, thus avoiding disturbing adhesions of the appendix to other viscera. He believes the method has a permanent place in surgery, and is the operation of choice in certain forms of adherent appendix. He concluded his article practically as follows: 1. The vermiform appendix may be shelled out of its peritoneal covering or serous coat. 2. The remaining serous coat can not cause a recurrence. 3. This method of dealing with an appendix, which is glued to other important structures, avoids the disagreeable sequences of loosening up strong adhesions, and in many cases may preclude subsequent operations, which are always embarrassing to the operator, and a misfortune to the patient.

DISCUSSION

DR. JOHN P. LORD, Omaha, Neb.: I have availed myself of this procedure in suitable cases, and am reminded of one patient on whom I operated eight years ago, following a technic similar to the one that has been described. In this case a young surgeon had operated for an hour and a half in trying to deliver the appendix, and by this means I was enabled to deliver it from the bottom of the pelvis. This procedure is valuable in that it saves lots of trouble and lessens danger.

(To be continued)

CHICAGO MEDICAL SOCIETY

Regular Meeting, held November 11, 1908

The President, DR. ALFRED C. COTTON, in the Chair.

The Bismuth Paste Treatment in Ear, Nose and Throat Affections

DR. JOSEPH C. BECK read this paper, which appears in this issue, page 117.

DISCUSSION

DR. HENRY GRADLE: I have had two cases of dacryocystitis in which the results from the use of bismuth paste were satisfactory. In one the cure was effected more rapidly than could have been obtained by other methods. In the other, a cure was nearly effected, when the patient left the city and has not returned since. I have treated two cases of persistent discharge from the middle ear, one after a radical operation, the other after a simple mastoid. In both of these cases the treatment was a total failure. On mechanical principles the treatment does not appeal to me as applied to the complicated and labyrinthine system of spaces adjoining the nose, various sinuses, or spaces surrounding the middle ear.

DR. A. J. OCHSNER: I have employed this method in about twenty cases of old tuberculous sinuses. The possibility of

application of bismuth paste in these cases is so great and the proportion of satisfactory results from it so large, that I look on it, in appropriate cases, as the most important advance in surgery that we have had during the past two years. I have applied the mixture in practically every part of the body, with the exception of some special parts, like the nose. I have had patients with old empyemas communicating with a bronchus, operated and reoperated on many times, and within six or eight weeks healing has taken place, and has been permanent, by the use of the bismuth mixture. I had a case of fistula leading down to the pancreas from a gastrectomy, which persisted in discharging, and which healed after a few weeks following injection of the bismuth mixture. I have had cases of prostatectomy, with persistent fistulas, that were treated with the bismuth mixture with satisfactory results. I have had two cases of tuberculous sinuses leading down to tuberculous kidneys, in which a cure was effected. One of the patients has gained forty pounds since the first injection.

DR. EMIL G. BECK: From the standpoint of general surgery, I believe that in the after-treatment of acute mastoid disease the bismuth paste will be used instead of a dressing. When my brother began to treat these cases with bismuth paste I knew he would have some good results, but had no idea that the method would be applicable to so many conditions as he has reported. I warned him in the beginning not to use the paste in any of the accessory sinuses, fearing that through some anatomic abnormality the paste might enter the cranium and produce compression. However, he has shown by a large number of cases that no bad results have ensued, and will not follow, provided one is familiar with the anatomy of the parts and the technic of the method. The method deserves a fair trial by others in the class of cases reported.

I desire to thank Drs. A. J. and E. J. Ochsner, who have done so much toward informing the medical profession of the value of this method. More than to anyone, I am indebted to my brother, Dr. Carl Beck, who has not only guided me in my experiments, but who first employed and advised me of the bismuth vaselin injections for diagnostic purposes, the method which eventually proved to be of such great therapeutic value.

DR. J. H. F. O'NEILL: One dose of yellow vaselin injected into a guinea-pig will reduce the bacteria in the intestines from 30 to 40 per cent. This has been proved by experimental work. Perhaps bismuth paste has the same effect on bacteria in the sinuses.

DR. WILLIAM L. BALLENGER: I have used bismuth paste in about twenty-five cases in the last two months, all of which have been ethmoidal except two, and these were a frontal sinus case and one antrum case. I have not used it in any ear cases, nor in any cases except as a postoperative treatment. Frankly, I have not been able to notice any advantage from this treatment over the methods formerly used. I am still persisting in its use and am trying to perfect my technic, hoping by so doing to get better results. I am not impressed that there is any particular advantage in this treatment, except in the mastoid cases, over other methods. For instance, in chronic mastoid cases in which a radical mastoid operation has been done, of which Dr. Beck reported a number of cases, we are accustomed to expect a cure from a single operation. Dr. Beck effects his cures by use of the bismuth paste. The question arises whether he would not obtain these cures without the use of bismuth. Recently I did a turbinectomy, with partial removal of the ethmoid, filled the nose full of paste, put in an anterior plug of cotton to retain the paste, and the patient had a severe hemorrhage. This is the only case in which I have had hemorrhage follow the use of the paste.

DR. A. H. ANDREWS: I have had two postoperative sphenoid cases, two cases of disease of the antrum of Highmore and a number of radical mastoids, in which I have used the bismuth paste. In these the results were satisfactory. I have had a number of other cases, not postoperative, in which I used bismuth paste, but in which I was not able to obtain satisfactory results. I have not injected bismuth paste in chronic suppuration of the middle ear, because I have been afraid to do so

DR. J. RAWSON PENNINGTON, Chicago: Judging from apparent results in treating nineteen patients with rectal fistula with this paste, I consider it a valuable discovery. In fourteen of the nineteen patients whom I have treated the discharge has ceased and the fistulas are closed, and, to the best of my knowledge, the patients are well. In one I passed a probe through the external opening, which was near the anus, upward and backward between the rectum and sacrum to a point about opposite the promontory of that bone. I question whether any surgical operation looking to a complete division of that tract would have been justifiable. Moreover, the man also had an abscess in the left groin which probably communicated with this fistula, though it was not demonstrated. About three ounces of the paste were injected into the fistula at one sitting. It is now closed, and the patient has had no discharge from it for more than two weeks.

DR. JOSEPH BECK: I have treated 319 cases, embracing a variety of conditions, without any ill results. I have treated a large number of cases of hypertrophic rhinitis and of tonsillar affections, yet I have had no ill effects from the treatment. I have used vaselin alone, and so have others, and have failed to get any effect from it, either in nose or ear suppurations. I think that when Dr. Ballenger perfects his technic he will get better results. The glass syringe ordinarily used to force the bismuth paste into the nose will not enable one to reach the cavities. Such a syringe is valueless in treating the sinuses. Patients should not be allowed to walk after the injection of bismuth paste, because in so doing the bismuth drops into the throat, and therefore hemorrhage occurs. I place my patients in bed after operation with bismuth, and the next day the bismuth is removed, and there is no hemorrhage. I have not had hemorrhage in any of my cases in which I have used bismuth as a dressing.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

*Twenty-first Annual Session, held in St. Louis,
Dec. 15-17, 1908*

(Continued from page 68)

Suprapubic Prostatectomy

DR. ARTHUR DEAN BEVAN, Chicago: Suprapubic enucleation of the prostate has the widest field of usefulness. It is practically applicable to all cases of prostatic hypertrophy, in which prostatectomy is indicated. It gives full and complete information of not only the prostate, but the bladder and its contents. It does not injure or interfere with the musculature and nerve supply of the perineum and structures controlling continence. It carries with it little risk of injury to the rectum; it is seldom followed by incontinence, fistula or stricture. The disadvantages claimed against it are greater mortality and necessity of longer residence in hospital. I feel confident that there are fewer complications after the suprapubic than after the perineal operation. While I do not belittle the various operations of perineal prostatectomy, or the excellent work done by the surgeons advocating this route, my conclusion is that the suprapubic operation is preferable to other methods which have been advocated.

DISCUSSION

DR. J. GARLAND SHERRILL, Louisville: I have had experience with all methods of operating for the removal of hypertrophied prostate, and while admitting that there is a slightly greater mortality from the suprapubic method, I am firmly convinced that the end results from this method are better than by any other method.

DR. CHARLES H. MAYO, Rochester, Minn.: There is a field for both suprapubic and perineal prostatectomy. In some cases, if the patient be examined by rectum it will be found that the prostate is close to the finger; and such a prostate is easily enucleated by the perineal route. In another case the prostate gives a great deal of trouble, although it may not be much enlarged. It is located high up, and is small

and hard, causing obstruction at the internal meatus by a prostatic bar or a middle lobe. If there is complication with stone or other foreign body in the bladder, and the patient is sep., i. e. such a case can be dealt with by the suprapubic route.

DR. CHARLES E. BOWERS, Wichita, Kan.: Four years ago I reported twelve consecutive cases of suprapubic prostatectomy without a death. Up to date I have done 47 operations suprapubically for enlarged prostate; but a short time ago I abandoned the suprapubic for the perineal route in a case of carcinoma of the prostate, but did not succeed with the infrapubic route. Of this number (47 suprapubic operations) I lost two patients, one dying a few hours after the operation. One died from carcinoma.

DR. BRANSFORD LEWIS, St. Louis, Mo.: While I am partial to the perineal route for the removal of enlarged prostate, I think there is a field for other methods. The cases should be carefully selected for the particular operation. One should take a catholic and broad-minded attitude in regard to this subject and consider the comfort and benefit of the patient regardless of whether or not one method of attack is easier than the other.

DR. MILES F. PORTER, Fort Wayne, Ind.: I have done twice as many suprapubic as perineal prostatectomies, and have observed that my suprapubic patients make smoother recoveries, all told; they are up quicker; they feel better sooner than do the perineal patients, other things being equal. But I do not know why.

DR. MAURICE H. RICHARDSON, Boston: When we have a certain form of prostate, encapsulated and easily removed from its capsule, no more beautiful operation anatomically can be imagined than perineal prostatectomy, but it is seldom in my experience that a prostate comes out so easily through the perineum. In many cases the prostate projects into the bladder, and by the suprapubic route we have an opportunity to examine the condition of the bladder; we know whether or not there is a stone present; we know whether or not there is cancer of the prostate, and as an anatomist I believe in operating with the sense of sight, when possible, as well as with the sense of touch.

DR. F. W. McRAE, Atlanta, Ga.: The cases I have seen, in which an extensive perineal operation has been done, have eventuated in a number of painful perineums. These patients, after the perineal operation, have no trouble in urinating, but when they stand up for any length of time, or sit, they have much pain. I have seen rectal trouble follow operations by the perineal route. Lately, I have been closing the suprapubic bladder wound snugly around a Jacobson catheter, passed through a stout rubber tube, and the bladder is closed down to the side of this tube, and two sutures of silkworm gut are put through the edges of the bladder for tightening the latter; then irrigations are kept up by an orderly or nurse; hot boracic acid irrigations are given to prevent any clotting, irrigating alternately through the suprapubic opening or retained catheter, and the patients are practically kept dry.

DR. A. D. BEVAN: My attention was called to the fact that after some two-step operations the patients had much greater comfort without any attempt at drainage. In some complicated cases, in which a suprapubic opening was made, the bladder drained and then a second operation done to remove the prostate, I found that without the introduction of any tube into the bladder or any catheter in the urethra the patient apparently was much more comfortable.

Dermoid Cyst of the Kidney

DR. WILLIAM S. GOLDSMITH, Atlanta, Ga.: Only two cases of dermoid cyst of the kidney have been reported up to this time, one by Paget, in 1853, and the other by Haekel, in 1902. The symptoms in my case were those of a solid tumor of the kidney, probably of the malignant type. It was of slow growth and associated with it were the three cardinal points of malignancy, hematuria, pain and tumor. The patient, aged 20, family history negative, at two years of age suffered with pain in the right lumbar region, and at intervals of two or three years was treated for kidney trouble. When sixteen years old, he experienced the beginning of a dull pain in the

right side, which progressively increased until he consulted me, when the pressure and pain radius was compared to that of a heavy watch lying in the abdomen. Four years ago he had attacks of colic, followed by a slight hematuria, which confined him to the house for twenty-four hours, and were relieved by hypodermics of morphin. Recurrences occurred two or three months apart, and for the past two years were characterized by the appearance of a solid tumor, in the right lumbar region. Hematuria and great pain were also accompanying features, and the disappearance of the outline of the tumor was frequently followed by a cessation of the pain. Having witnessed an attack three days before the operation, when the tumor was most manifest, I was convinced that these symptoms were due to a twisted ureter, since the return of the kidney to its normal position practically obliterated the tumor outline. Twenty-four collections of urine showed insignificant deviations from the normal quantity, and microscopic and chemical examinations were negative, except for red blood cells. The patient's weight was normal, and his general condition good. An exploratory operation was advised. A lumbar incision was made, which exposed a large semi-solid tumor of the upper pole of the kidney. Efforts to deliver the kidney resulted in a rupture of the tumor, and a quantity of red, granular material was scooped out with the fingers. Nephrectomy was quickly performed, and recovery was prompt and uneventful. The specimen was submitted to a pathologist, who pronounced it a dermoid cyst.

Stone in the Kidney

DR. MAURICE H. RICHARDSON, Boston: Operations on stone in the kidney and ureter are becoming of greater frequency and importance. There is a close analogy between renal stone and gallstone. In early and difficult cases the diagnosis rests on a history of pain in some of its forms, usually without confirmation by the x-ray, by cystoscopy or ureteral catheterization, by the touch, or by marked signs in the urine. The history in such cases, as in many gallstone cases, gives the only clue; hence, we must study with renewed care the history of stones demonstrated in kidney or ureter, just as we do the history of stones demonstrated in the gall bladder. The indications for operation are hopeless impaction of a stone in the ureter; in the kidney the mere presence of a stone. The contraindications are a local pathology which either forbids operation or makes it so dangerous or so uncertain that the patient has much to lose and little to gain. Fearless frankness in reporting errors in diagnosis, technic, and results is essential in order that indications may be reasonably restricted, and that the choice of patients and friends may not be unjustifiably influenced toward operative measures; at the same time, the evils of calculus situated in the kidney and ureter, and unrelieved, must be likewise frankly and freely published by the physician and palliatist, lest we do not know or lest we forget that health and life have been, are, and will be needlessly compromised by the rejection of mechanical treatment for this mechanical lesion. The great operative danger in nephrotomy, as well as in nephrectomy, is hemorrhage; and when this is from the renal artery or vein or vena cava, easy and instant accessibility is essential to avert death on the table; hence the anterolateral approach is the best. Nephrectomy seems unjustifiable unless the changes in the kidney demand it, especially when the remaining kidney is so likely to contain the nuclei of stones. Before a nephrectomy the remaining kidney must be carefully palpated by the hands. As the stone may be overlooked, so may tuberculosis or other infections. The subject demands wide experience with all manner of treatment, and with candid discussion of failures as well as successes.

DISCUSSION

DR. G. E. GAVIN, Mobile, Ala.: I believe the formation of stone is always preceded by infection of the pelvis of the kidney, and while the source of that infection may be the bladder, it is most often from the colon. I have not been able to rely on the x-ray as an aid to diagnosis as much as I have on the history of the patient. I prefer to remove the stone through the convex part of the kidney. I almost lift

the kidney on the back, place a rubber tube around the pelvis, control hemorrhage thoroughly, make a longitudinal incision, and with very little blood lost one can deliver the stone.

DR. CHARLES P. NOBLE, Philadelphia: I agree with Dr. Richardson that a well-studied history in these stone cases is the best guide to a diagnosis. I recall the case of a patient on whom I did a nephrectomy for stone and in whom the kidney was destroyed because a small stone had obstructed the ureter and produced disseminated abscesses in the kidney. That patient had been in the hands of a professor of therapeutics, who had treated the patient for three years for gout and had failed to appreciate the importance of a careful study of the urinary organs by modern methods.

DR. BRANSFORD LEWIS, St. Louis: The history of the case, cystoscopy and ureteral catheterization are the means *par excellence* for making a diagnosis of stone in the kidney, but I would not rely on any one of them, preferring to place my reliance on the testimony supplied by all three.

DR. F. W. PARNHAM, New Orleans: I have been impressed with the remarkable absence of pain and other subjective symptoms in a case in which there was a large stone in the kidney. Three years ago I operated on a woman for a large encysted stone in the pelvis of the kidney, running up into the calices, and through a large L-shaped incision the stone was removed. This woman had scarcely any pain, but she passed pus in the urine.

DR. A. D. BEVAN, Chicago: This is a branch of surgical work which can not be done properly by any one man. Good kidney stone work demands, first, a good surgeon; second an expert in the use of the x-ray. The x-ray, when properly used, gives much less than 10 per cent. of error. Third, an expert in cystoscopic examination, and one who, with the least discomfort to the patient, can catheterize the ureters. Fourth, an expert laboratory man to make careful analyses of the urine.

DR. STUART MCGUIRE, Richmond, Va.: Three cases have occurred in my practice which illustrate the importance of having the combined opinion of four different observers, namely, the surgeon, the pathologist, cystoscopist, and the x-ray man. A recital of the history of one case will do for all. The patient came with a set of symptoms which were indicative of appendicitis, or equally so, of stone in the right ureter. So far as the pain and the history of the attacks went, it might have been either. In all three cases there was a large quantity of blood and pus in the urine. The ureters were catheterized, the left side being found normal in each case. The right side was found to contain blood, pus and cells from the ureter. Up to this point the evidence seemed in favor of ureteral calculus. An x-ray examination was made, and (in every instance) with a negative result. Therefore, the operation for appendicitis was performed, the appendix exposed without disturbing its position, and in each instance a large, angry appendix was found adherent along the line of the right ureter. Evidently the inflammation originating primarily in the appendix had extended by continuity of tissue to the ureter, causing ureteritis. Within a week after appendicectomy the urine was clear, and no subsequent trouble followed.

Conservative Surgery, Then and Now

DR. F. W. PARNHAM, New Orleans: The aggressive surgeon, who always feels sure he is right, then goes ahead, would do well to temper the enthusiasm born of the present brilliant achievements of surgery by giving reverent heed to the admonitions of the past. In renal surgery, for example, conservative and radical surgery display most conspicuously their coincidence. Here results demonstrate that often the most conservative treatment is also the most radical. As witness of this, what could be more striking than that of a case of Bransford Lewis, in which by means of the stylet ureteral catheter and radiographic plates he found three independent ureters, two of them healthy, the third showing gonococcal infection, the cause of a recurrent gonorrhea of five years' standing. Through the means mentioned, the anatomic anomaly was demonstrated; the physiologic phenomenon of supplying three different urines by one indi-

vidual was proved, and through medicated lavage of the infected ureter, the source of infection was removed and the patient permanently relieved. The glory of the present-day surgery rests primarily on more accurate diagnosis, but the refinements of scientific investigation must always be subjected to the criticism of common sense. It is becoming more and more characteristic of the modern surgeon that, while recognizing the value of data furnished him by the laboratory, he will relentlessly subject them all to the test of reason and will only decide on his surgical therapeutics when, after a thorough study of all the facts, he has obtained a true perspective of the case.

Appendicostomy in Pernicious Anemia

DR. L. E. BURCH, Nashville: I wish to report the following case of appendicostomy: The patient, a negro, aged 45, had marked muscular weakness, shortness of breath, instability of pulse and edema of the ankles. He sought relief from diarrhea associated with gastrointestinal symptoms. His mucous membranes were pale; there was brownish discoloration on the skin of hands and face; exhaustion was extreme, without marked emaciation. Examination of the blood showed the red blood cells to be 1,800,000; the white blood cells, 3,000; hemoglobin, 30 per cent. He was given ascending doses of arsenic, reaching as high as 30 drops, three times a day, of Fowler's solution. Colonic irrigations of salt solutions were also used. About three weeks later, the red blood cells were 2,000,000; white blood cells, 5,000, and hemoglobin 50 per cent. Eighteen days later the red blood cells were 1,710,000; white blood cells, 3,500, and hemoglobin, 50 per cent. The nucleated red cells were in great numbers, both normoblasts and megaloblasts, associated with a marked poikilocytosis. At this time 95 per cent. of the bacteria in the stools were anaerobic, and no intestinal parasites were found. A twenty-four hour specimen of the urine showed a trace of albumin, no sugar, and a few hyaline and granular casts. The ethereal sulphates were present in large quantities in the urine, as well as indican and skatol. A test meal showed complete absence of hydrochloric acid, with the presence of lactic acid. Appendicostomy was suggested, consented to, and performed, with recovery. Conclusions: All patients should have stools examined, in order to determine the presence of the *Bacillus capsulatus acrogenes*. If these bacteria are present in great numbers, then high irrigation, combined with arsenic internally, should be used, and if the patient fails to improve, the appendix offers the best route for thorough irrigation.

DISCUSSION

DR. H. S. McLEAN, Richmond, Va.: Twenty months ago I operated in a case similar to this one. The man had been ill for years. He was brought to me with an acute attack of appendicitis, and in getting his history before operation I was told about his anemia, his continued weakness, and bowel trouble. He had catarrhal appendicitis. I performed appendicostomy. He had been living on zwiebach, buttermilk, etc., for years, but six weeks after operation the red blood count was something over four million. He soon gained fifteen pounds, went to Europe, and is now in excellent health.

Porro Cesarean Section

DR. F. D. SMYTHE, Memphis, reported a case of Porro Cesarean section, and said that the operation was selected for the following reasons: (1) The rapidity with which the Porro operation could be performed increased the chances of the patient surviving the operation. (2) The remaining ovary was cystic and, in all probability, a cyst of the same character as the large one removed. Such cysts are bilateral in 4 per cent. of cases, and to have permitted it to remain in the event of recovery of the patient would have been to invite a second operation in the near future with its risk to life and effect on purse. (3) This patient was in a condition too much weakened to be subjected to any avoidable risk of the puerperium, hence the Porro operation. The Sanger operation could not have provided the protection which was essential to the salvation of the patient. (4) There will always occur cases demanding Cesarean section

in the interest of the child and mother. In elective cases there should be no infant mortality attending either operation: hence the surgeon should select the operation that subjects the mother to the least risk of losing her life. I am fully convinced that the Porro operation is the safer, and that the surgeon performing the Sanger operation in an honest effort to preserve the reproductive organs will have occasion to congratulate himself now and then on the result of his efforts in that plausible undertaking, but he can not escape the responsibility, at times, of the loss of a mother, whose life could have been saved had the simpler and safer operation been selected at the outset. (5) Myomectomy is attended by a higher operative mortality than supravaginal hysterectomy. Hysterotomy or the Sanger operation is likewise more hazardous than the Porro method for the same reasons; namely, sepsis and hemorrhage. During the puerperium, with an expanding and contracting uterus, the dangers from both sources are greatly increased. The surgeon's first duty is to his patient, and only after that duty shall have been fully discharged is he at liberty or justified in considering future generations. So, until I am convinced that the so-called conservative operation is as safe to the mother beyond question as the Porro operation, it will be my practice to choose the latter.

(To be continued)

Medicolegal

Right to Practice Medicine and Power of State Board to Revoke Certificate—Constitutional Requirements as to Notice

The Supreme Court of Iowa says, in the case of *Smith vs. State Board of Medical Examiners*, that the power of the State Board of Medical Examiners to revoke the certificate of a physician is contained in the following clause of Section 2578 of the Iowa Code: "The Board of Medical Examiners may refuse to grant a certificate to any person otherwise qualified, who is not of good moral character, and for like cause, or for incompetency . . . may revoke a certificate by an affirmative vote of at least five members of the board." It was claimed that the statute violates the provisions of the federal and state constitutions, which declare that no person shall be deprived of life, liberty, or property without due process of law, and the provision of the state constitution which declares that "the legislative authority of the state shall be vested in a General Assembly, which shall consist of a senate and house of representatives. . . ."

It was contended that the statute is unconstitutional and void because it does not provide or require that the accused shall be notified in any manner of the proceeding to revoke his certificate, or provide or require that he shall be given an opportunity to appear and defend himself; and hence it is possible for the board "to arbitrarily take from the physician his property, and deprive him of the liberty to follow his chosen profession, without due process of law, or without any process."

Whether the right to practice medicine be classed as a property right, strictly speaking, or as a mere privilege, is not material; for, whichever name be given it, it is a valuable right which can not be taken away without due process of law, the essential elements of which are notice and opportunity to defend. But due process does not require that any particular form of proceedings be observed, but only that the same shall be regular proceedings in which notice is given of the claim asserted and an opportunity afforded to defend against it. And, while statutes regulating the practice of medicine clearly fall within the police power of the state, they can not be permitted to override the constitution, but they must be reasonable, and, when a valuable right is sought to be disturbed thereunder, the provision of the constitution prohibiting the taking of property without due process of law is paramount, and must be observed.

In *Beebe vs. Magoun*, 122 Iowa, 94, in discussing the necessity of notice of the assessment of the cost of street improvements, this court quoted with approval the language of the Court of Appeals in *Stuart vs. Palmer*, 74 N. Y., 183, as follows: "It is not enough that the owners chance to have notice, or that they may, as a matter of favor, have a hearing. The law must require notices to them, and give them the right to a hearing and the opportunity of being heard." And this rule is, the court thinks, supported by the decided weight of authority and applicable to the question here before it.

But, although a statute may not expressly provide for notice, it will not be held unconstitutional or invalid if the requirement of notice may be fairly implied therefrom. In some of the cases it is said that notice is to be implied from the very fact that it is a constitutional requirement, irrespective of particular provisions in the statutes apparently contemplating that notice is to be given.

Section 2576, Chapter 17, of the Code, relating to the practice of medicine, must be considered in connection with Section 2578 in determining the question before the court, for it relates to the same matter, and that section provides as follows, so far as the same is material here: "The State Board of Medical Examiners . . . shall hold regular meetings in May and November and special ones as may be necessary, due notice thereof being given, at which it shall discharge the duties contemplated by this chapter. . . . In all examinations made or proceedings had pursuant to the provisions of this chapter, any member of the board may administer oaths and take testimony in any manner authorized by law."

The granting of a certificate and its revocation are an exercise of the police power of the state identical in their objects and power. Also by the express terms of Section 2576 the granting of a certificate, or the revocation thereof, can only be done at a regular meeting, or at a special meeting of which due notice has been given. And the court thinks it fairly implies that parties interested in the matters pending before the board shall be given an opportunity to be heard.

The further provision that in all examinations made or proceedings had pursuant to the provisions of the entire chapter oaths may be administered and testimony taken in any manner authorized by law, in the court's judgment contemplates contests which are possible only when all interested parties are before the board. The board does not act in a judicial or legislative capacity in granting or revoking certificates, but it acts in a ministerial or quasi judicial capacity. And in its ministerial capacity it may, without violating Article 3 of the constitution, determine the character of notice and the method and manner of procedure. Every requirement of the law is met if the party be given a fair and reasonable opportunity to be heard.

"Stationary Corporations" Can Not Be Made Liable for Services Rendered Injured Employés

The Appellate Court of Indiana, Division No. 2, says that in *Sourwine vs. McRoy Clay Works* and another was an action by a physician to recover for professional services rendered an employé of the corporation at the request of the corporation's superintendent. The contract set up was valid only if the facts leading up to it were so unusual and extreme as to impose on the employer a duty analogous to that imposed on railroad companies. Facts of this character were not set up in the complaint.

The law is entirely well settled. Corporations whose "business is stationary" are under no duty "to furnish their workmen with medical services, any more than they should be required to furnish them with their dinner." *Cushman vs. Cloverdale Coal & Mining Co. (Ind.)* 84 N. E. 759 (reported in the *Medicolegal Department of THE JOURNAL*, Aug. 29, 1908, pp. 787, 788). This conclusion was authoritatively declared after extended consideration.

The costs and expenses of medical service which might be fastened on innocent stockholders, if the president and general officers of such corporations were given power to incur

obligations of such a character, would probably, in view of the great number of accidents which are constantly happening, be considerable, and the payment thereof might seriously interfere with the attainment of corporate ends. There might be occasional instances in which prompt medical service would be advantageous to the company; but, as a rule, the severity of the injury does not affect the question of its liability, and even should death result from a failure of immediate aid, the amount and basis of liability would not be changed.

Persons employed by stationary corporations, such as coal mining and clay companies, should, if they desire surgical attention, make provisions therefor in advance of accident; for they must know that accidents are liable to happen. If they fail to do so, and their "family, friends and acquaintances" fail to come to their aid, charitable doctors are to be found in every community, responding to that call to which "stationary corporations" are by law deaf.

It is possible that the legislature might burden the exercise of corporate franchises by a condition requiring emergency aid to be given by it to men suffering injury in its service through its negligence, or even through their own; but no such statute, in Indiana, was pointed out. Certain provisions are made in regard to coal mines of the class of the defendant in the Cloverdale Case. But such statutes are in "derogation of the common law," "highly penal" in character, and must, therefore, be "strictly construed," and "not extended by construction"; and the court in that case ignored the statute.

The demurrer of the other defendant, who was the superintendent in question, was also properly sustained. Where one person, acting for another, holds himself out as having authority to do an act, and thereby draws another into a reciprocal engagement, he will be liable if he acted without authority; but if such want of authority was known to both parties, or unknown to both parties—there being a mutual mistake—the agent would not be personally liable. It was not alleged that this agent (the superintendent) was guilty of fraud, of making a false statement, or of concealing information as to his authority; and he was not liable.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

December 24

- 1 *Tuberculosis of the Larynx. A. C. Getchell, Worcester, Mass.
- 2 *Chronic Gout, with Observations on Gout in General. D. E. Keefe, Springfield, Mass.
- 3 Epilepsy (concluded). E. Flood, Monson, Mass.

1. **Tuberculosis of the Larynx.**—Getchell believes that the larynx is infected through the blood vessels or lymphatics and not from bacilli deposited on the mucous membrane. Laryngeal tuberculosis is usually a late manifestation of lung disease; he has never seen a primary case, and doubts its possibility. The difficulty of diagnosis of early pulmonary phthisis, while in the larynx it can be seen, explains supposed cases. Hoarseness and pain are the two symptoms particularly denoting laryngeal involvement, but neither is constant or definite. He can not attach to pallor of the larynx the importance as a precursor of tuberculous invasion that is commonly assigned to it; advancing tuberculous disease of the larynx is indicated rather by localized redness than by pallor. He mentions as suggestive of tuberculous processes existing somewhere in the body, a general moistness of the entire larynx, which lacks tone and character; and an alteration of the normal relation of ventricular bands and cords. In general, a thickening of the part of the larynx, be it a ventricular band, cord, or arytenoid, occurring in a person having pulmonary tuberculosis, is to be taken as a mark of the invasion of tubercle into the larynx. Tuberculosis and syphilis sometimes coexist and give rise to confusion. Laryngeal disease occurring in a tuberculous per-

son, is probably tuberculous; in a syphilitic, probably syphilitic. Getchell particularly controverts the idea that of the two classes of cases, the hopeful and the hopeless, it is our duty to keep our hands off the hopeless. That is what we used to do in pulmonary tuberculosis, but since we have kept our hands on all cases we have found that many of the hopeless ones have become hopeful. The treatment of the tuberculous larynx is primarily the treatment of the patient, and secondly of the larynx. Cough must be controlled by rest, open air, soothing inhalations, suggestion, and by opium only if other measures fail. An excellent treatment for tracheal catarrh is intratracheal injections of guaiacol, grains 20 (grams 1.30); menthol, grains 40 (grams 2.60), and olive oil, one ounce (grams 27). He divides cases into three classes for the purpose of treatment. First, moderate involvement, with active inflammation with or without ulceration, with pulmonary lesions and constitutional symptoms. Second, localized areas of infiltration or ulceration without active inflammation, with inactive pulmonary lesion, and without marked constitutional symptoms. Third, marked extensive involvement, particularly of the arytenoids with gray infiltration, and of the epiglottis. The first class is dealt with by the best hygienic conditions in a sanatorium, with complete silence and control of cough, antiseptic cleansing sprays, and bland inhalations; on subsidence of inflammation, astringent and antiseptic applications. For ulceration iodoform powder is insufflated. For the second class more active treatment is recommended. For ulcerations, lactic acid, following cleansing sprays, and the destruction of localized areas of infiltration. Relief of pain and difficulty of breathing are the points that call for attention in the third class.

2. **Gout.**—Keefe discusses the effect of uratic deposits on bone and cartilage, effects of opening or puncturing tophaceous masses, the cause of deposition of urates in joints and other tissues, and the condition of urinary organs. In regard to treatment, he insists on an abstemious life. He advises eschewing alcohol in all its forms; avoiding game, dark meats and such as contain large quantities of purin, and avoiding exposure to cold and damp atmospheres. He also recommends an occasional short course of alkalies and purgatives and active exercise out of doors. Curative treatment demands for a time liquid diet and a limited list of medicines, such as thymic acid, as recommended by Schmoll, 20 cgm. (3 grains) three times daily; piperazin, 30 cm. (5 grains) four times daily. A hypodermic of morphin may be given if necessary for excruciating pain, and the following prescription will do very well:

Sodii phosphatis	10	3iiss
Sodii salicylatis	15	3iiiss
Sodii bicarbonatis	10	3iiss
Fluidextracti cascarae	4	3i
Tincturae cardamomi co.	'	
Tincturae colchici sem., aa.....	10	3iiss
Infusi tritici, ad.....	120	3iv

Misce. Signa.: A dessertspoonful four times daily.

New York Medical Journal

December 26

- 4 Influence of Alcohol on the Public Health. F. Peterson, New York.
- 5 Hydrocephalus. S. D. Ludlum, Philadelphia.
- 6 *Diagnosis of Acute Miliary Tuberculosis. S. von Ruck, Asheville, N. C.
- 7 Opsonic Theory. A. C. Mercer, Syracuse, N. Y.
- 8 *Constitutional Inferiority. H. W. Wright, New York.
- 9 Soft Tissue Roentgenography. H. Hulst, Grand Rapids, Mich.
- 10 Severe Ivy Poisoning. R. F. Ward, New York.

6. **Miliary Tuberculosis.**—Von Ruck reviews in detail the diagnosis of acute miliary tuberculosis and emphasizes the following points as of real value in its distinctive diagnosis from other affections:

1. The rapid emaciation which is a striking feature in almost every case, and which is out of all proportion to the degree of fever, the state of the digestive organs, and the amount of food taken.
2. The bronchiolitis of acute miliary tuberculosis of the lung is characteristic in that the catarrhal signs appear first in the smaller and then extend to the larger bronchi, instead of in the reverse order as in ordinary bronchitis. In further contrast to ordinary bronchiolitis the lower posterior portions of the lung in acute miliary tuberculosis are often less involved than the upper.

3. Cases in which typhoid fever is minutely simulated by acute miliary tuberculosis or in which the two diseases coexist are rare, and a careful study of the pulse, temperature, and respiration will usually lead to a correct distinction.

4. Serum reactions are reliable when present in well marked degree, but tuberculous patients may show a modified Widal reaction, and the Arloing-Courmont reaction is not always present in tuberculosis.

5. The ocular test as applied by Calmette and the cutaneous application of tuberculin according to the method of v. Pirquet, while not yet established as thoroughly reliable, are safe and one or both should be employed in all doubtful cases, especially if the subcutaneous injection of tuberculin is contraindicated.

6. Bacteriologic examinations of the blood, feces, and secretions may be of great aid in doubtful cases.

7. The appearance of choroid tubercle or miliary tubercle of visible mucous membranes in the course of the disease removes all doubt.

8. **Constitutional Inferiority.**—The cases considered in Wright's paper are types of individuals whom we can immediately place for convenience between the imbecile class and the dementia præcox group. He discusses the extent of their dependence on heredity and environment respectively and summarizes the etiologic element by saying that they are exaggerations of normal, universally constitutional tendencies, becoming manifest in certain individuals because of their lack of inhibition, this lack being due both to unfavorable environment and to hereditary defect. From a study of six cases, all in women, the most helpful distinguishing points from dementia præcox are as follows:—

1. A reaction to some definite cause, usually allomorphic, this reaction being somewhat similar to the normal, but different in that it is an abnormally exaggerated type of reaction such as would not occur in a well balanced individual; i. e., a reaction to environment, not an autopsychic disintegration of personality.

2. Frequent occurrence of such reactions subside with removal of the exciting cause and leave the patient unchanged from the usual standard; i. e., absence of deterioration.

3. A history of abnormalities of condition from an early age, the individual never having been considered quite normal. This is contrary to the usual history of dementia præcox.

4. No loss or impairment of that part of the intellect having to do with memory, orientation, and application of previously acquired general knowledge.

5. No marked affection of the sensorium.

6. No marked incoherence or blocking of thought or dreamlike condition accompanied by fantastic delusions or disassociations of personality, such as manifested in katatonía and other forms of dementia.

From idiocy and the low grade or average type of imbecile it seems unnecessary to take up much time in making a distinctive diagnosis.

Medical Record, New York

December 26

- 11 *Tuberculosis Among the Jews. M. Fishberg, New York.
- 12 *Italian Immigration and Insanity. A. W. Ferris, New York.
- 13 The Opiate Habit. W. F. Waugh, Chicago.
- 14 Early Diagnosis of Gastric Carcinoma. A. Bassler, New York.
- 15 *System and the Doctor. L. K. Hirshberg, Baltimore.
- 16 Pansinusitis Dextra with Paralysis of the Right Vocal Cord. I. W. Voorhees, New York.
- 17 Prevention of Hemorrhage During Operations on the Nose and Throat. H. H. Pelton, New York.

11. **Tuberculosis Among the Jews.**—Fishberg reviews the various theories that have been adduced to explain the comparative immunity of the Jews to tuberculosis. He points out that it is the country dweller after immigrating to the city who has most chances to contract contagious diseases, particularly tuberculosis. All such diseases, in fact, when imported into a place where they were previously unknown attack almost everybody. For 2,000 years the Jews have lived almost exclusively in cities, and during medieval ages were confined in the worst parts of cities, the Ghettos. They have therefore passed through a process of infection during past centuries, hence their lower mortality to-day from tuberculosis. Even when infected, the prognosis is more favorable in the Jew than in other people. The course of the disease is slower. Acute miliary tuberculosis is very rare. There are, however, indications that this advantage of the Jew is not permanent.

12. **Italian Immigration and Insanity.**—Ferris reviews the origin and conditions of existence of the classes of Italians who form the immigrant element in this country, and examines the many factors that combine to influence or modify the physical and mental development of the Italian people who come to our shores and weighs their temperamental and acquired mental traits. He discusses the kind of occupation they adopt, and their relation to the insane in the light of Dr. Salmon's remark, that under the unusual stress of the

first ten years in the United States many thousands of immigrants are destined to become insane. Ferris contends that this statement does not apply to the Italian immigrants. As a rule, they are temperate and cheerful, and, while often illiterate, make good citizens, the second generation being bright and intelligent. Moreover, the Italian government is doing all that it can to prevent its sick and insane being sent away, and is caring for them at home.

15. **System and the Doctor.**—Hirshberg regrets the lack of system so generally found among physicians, and describes his own method of systematic record derived from Dr. Osler's instruction, by means of separate card indexes for case records, libraries and journal references, professional accounts and personal papers and accounts. He suggests the great advantage of employing a stenographer to take charge of the accounts and these records. He sends a personal letter every year to patients who have not called on him for twelve months, to learn the subsequent course of their illness, thus keeping his records up to date and at the same time delicately ascertaining which patients have drifted into other hands. The index cards of these latter are removed and destroyed.

Lancet-Clinic, Cincinnati

December 19

- 18 Obstruction of the Bowel. C. T. Souther, Cincinnati.
- 19 Enterostomy—Its Value in Intestinal Obstruction. E. M. Gilliam, Columbus, Ohio.
- 20 *Some Object Lessons in Otology for the General Practitioner. J. A. Stucky and S. B. Marks, Lexington, Ky.
20. Abstracted in THE JOURNAL, Nov. 21, 1908, p. 1807.

Medical Fortnightly, St. Louis

December 25

- 21 Notes of Travel in Europe—Railroads. A. L. Benedict, Buffalo.
- 22 Impetigo. W. S. Gotthell, New York.
- 23 Diet in Hyperacidity. J. M. Bell, St. Joseph, Mo.

American Journal of Medical Sciences, Philadelphia

November

- 24 Gallstone Disease. J. B. Deaver, Philadelphia.
- 25 *Ascites in Typhoid Fever. A. McPhedran, Toronto, Canada.
- 26 *Lobar Pneumonia. G. W. Norris, Philadelphia.
- 27 *Pharmacology of Heart Stimulants. H. C. Woods, Philadelphia.
- 28 *Ataxia of the Heart Muscle. E. Schmoll, San Francisco.
- 29 Interpretation of the Venous Pulse. G. Bachmann, Philadelphia.
- 30 *Fatigue in School Children, as Tested by the Ergograph. R. G. Freeman, New York.
- 31 *Diagnostic Value of Cutaneous Hyperalgesia (Head's Zones) in Abdominal Disease. C. A. Elsberg and H. Neuhoof, New York.
- 32 Tumor of the Gasserian Ganglion. Report of Two Cases with Necropsy. W. G. Spiller, Philadelphia.
- 33 Etiologic Importance of Abnormal Foot Posture in Affections of the Knee. D. Silver, Pittsburg.
- 34 Ricin Method of Jacoby-Solms for the Quantitative Estimation of Pepsin. E. H. Goodman, Philadelphia.

25. Abstracted in THE JOURNAL, June 6, 1908, p. 1930.

26. **Lobar Pneumonia.**—Norris' study is based on a consideration of 445 cases in the Philadelphia General Hospital between Feb. 1, 1905, and Dec. 23, 1907. He was led to collect the present series of statistics by the fact that a considerable number of patients who appeared clinically to be hopeless cases recovered. Aside from the constantly opened windows and doors there has been no innovation in the method of treatment employed. For the most part treatment has been symptomatic, mainly sedative or stimulating as the individual case demanded. In regard to alcohol, while it seems to have been shown by Bachman that alcohol possesses no power of sustaining action on the rabbit's heart, it does seem to be a fact based on prolonged clinical observation that habitual topers, when attacked by pneumonia, are often benefited by a reasonable amount of the drug. In regard to alcohol and strychnin, however, it seems to him that in the average cases perhaps too much stimulation has been employed. Eserin has been employed beneficially in a number of cases in which there has been marked tympanites. Sponging with cold water has been used frequently with good results not only to reduce temperature but to tone the nervous system. Personally he has never been convinced that digitalis accomplished anything in patient; having any considerable degree of fever. Of complications, among 445

cases acute pericarditis occurred 8 times, always fatally; acute endocarditis 3, also fatally; empyema 2, one case fatal; pulmonary abscess 2, one case fatal; meningitis 3 cases, with 2 deaths; acute arthritis, 3 cases, with 2 deaths; otitis media, 6 cases, 1 death; parotiditis, 1 case, with recovery; acute peritonitis, 1 case, with death; acute cholitis, 4 cases, all fatal; left femoral phlebitis, 1 case, with eventual recovery. He discusses the result of urine and sputum examination and leucocyte counts, and cites three cases of either, or operative, pneumonia which terminated fatally. He thinks that any one who has the courage to try the fresh air treatment and sufficient persuasive power over the patient's relatives to allow it to be tried, will never abandon it.

27. Heart Stimulants.—Wood confines his consideration to the digitalis group—digitalis, strophanthus, squills, apocynum and adonidin. The following factors in the action of these drugs interest clinicians:

1. The stimulant influence on the cardioinhibitory mechanism which prolongs the diastole and thus slows the pulse.
2. The increase in the tonicity of the heart muscle leading to a more complete and more powerful systole.
3. The constriction of the blood vessels.

The diastolism, the incomplete diastole, and the coordination of the heart, which are produced by very large doses of digitalis, are toxic manifestations and of more minor importance to the therapist. Wood regards the action of digitalis in slowing the pulse as more important in heart disease than is generally supposed. The important effect of digitalis in increasing the muscular vigor of the heart he thinks due to the fact that its influence is much more felt in the left ventricle than elsewhere, a fact of importance in certain cases of mitral regurgitation when the ventricular muscle is more hypertrophied than that of the auricle. As to the vasoconstricting influence, while more force is required to drive blood through narrow than through dilated arteries, in many cases the vascular contraction is a conservative effort to maintain circulatory equilibrium, but when there are degenerative changes or extreme dilatation, increased resistance to the flow of blood may work great damage. Clinicians should not be too hasty in trying to dilate the vessels in chronic heart disease. The available agents all increase the pulse, thus counteracting the heart-slowng action of digitalis. The reason that more harm is not done by nitroglycerin in heart disease is because of the infrequency of its administration as compared with the rapid exhaustion of its action. Squills and apocynum he dismisses as of practical utility only in selected cases because of their irritant action on the gastrointestinal tract and kidneys. He has sought in vain for evidence of the belief that strophanthus differs from digitalis in the absence of influence of the blood vessel. It has, however, the advantage that it is not cumulative. Adonidin is a remedy of promise, but though it has been before the profession thirty years, it remains still in the stage of promise. As to the use of active principles, he holds that if there be any single principle representing completely the therapeutic virtues of digitalis, it is not digitoxin, which is the most dangerous and the most cumulative, more active in its vasomotor effects than either digitalis or strophanthus, and he cites Kakowski's experiments to show that neither digitalin, digitalein nor digitoxin can induce the cardiac contraction effected by digitalis.

28. Ataxia of Heart Muscle.—Schmoll reviews the modern literature and concludes that we must distinguish between two varieties of dissociation of the activity of the ventricles: 1. Hemisystole, consisting of alternating contractions of the left and the right chambers of the heart; and 2, partial contractions of the heart muscle, for which he proposes the name of "ataxia of the heart." He describes a case in which dissociation of the activity of the ventricles was found, and gives the tracings. As in locomotor ataxia the coordination of the different parts of the muscles of the limbs has been lost, so in ataxia of the heart the cooperation of the different parts of the heart muscle is lost. How the circulation can be kept up effectively under such conditions is a marvel to anybody who has carefully analyzed the action of such a heart. Investigation of ataxia of the heart will certainly show that

partial contractions of the ventricle occur frequently in perpetual arrhythmias, and that a large number of symptoms observed in these cases can be explained only by partial contractions of the ventricles.

30. Fatigue in School Children.—Freeman discusses the testing of school children for fatigue in New York by means of the Crampton test, the Storey ergograph, and the Mosso ergograph combined with an adder as used in the Chicago schools. He regards the last as the most reliable instrument, but adds that the ergograph, so far as his work indicates, is of no value in modifying the school day in the public schools of New York for the average student, but might be shown to be of value in lightening and controlling the work for those pupils who give evidence of marked fatigue during the school day.

31. Cutaneous Hyperalgesia in Abdominal Disease.—Ellsberg and Neuhof discuss this subject very exhaustively and formulate the following conclusions:

1. We agree in the main with the statements of Head, that there are present in many affections of the abdominal viscera, constant and definite areas or zones of cutaneous hyperalgesia.
2. These zones may vary somewhat in extent and in outline, but they have a characteristic location.
3. The presence of a characteristic zone is an evidence of an affection of the corresponding abdominal viscus, although not of necessity the affection which is causing the symptoms.
4. The zones are present in a large percentage of patients with acute affections of the appendix, of the gall bladder, of the uterine adnexa, and are of considerable value in the diagnosis of these acute affections.
5. Zones are frequently present in acute disease of the other abdominal viscera, and when present aid in making the correct diagnosis.
6. Cutaneous hyperalgesia may appear in acute abdominal disease. Its presence is no index of the gravity of the lesion. Its sudden disappearance may be of grave significance.
7. In the absence of all other localizing signs or symptoms, the zone may indicate the organ that is affected. In most instances, however, it must not be used to make the diagnosis, but only as a diagnostic aid, to substantiate conclusions reached from a consideration of all the symptoms and signs.

Journal of Medical Research, Boston

November

- 35 *Curative Influence of Extracts of Leucocytes on Infections in Animals. P. H. Hiss, New York.
- 36 *Precipitation of Bacterial Extracts by Extracts of Leucocytes. P. H. Hiss and H. Zinsser, New York.
- 37 *Mechanism of Protection by Leucocyte Extracts. H. Zinsser and P. H. Hiss, New York.
- 38 *Twenty-four Cases of Epidemic Meningitis Treated with Leucocyte Extract. P. H. Hiss and H. Zinsser.
- 39 *Treatment of Lobar Pneumonia with Leucocyte Extract. P. H. Hiss and H. Zinsser.

35 to 39. Discussed editorially in THE JOURNAL, Dec. 12, 1908, p. 2062.

Illinois Medical Journal, Springfield

November

- 40 *Placenta Prævia. F. D. Hollenbeck, Chicago.
- 41 Extrauterine Pregnancy and Retrouterine Hematocele. A. B. Keyes, Chicago.
- 42 Case of Extrauterine Pregnancy. A. B. Eustace, Chicago.
- 43 Obstetrical Work by the Country Doctor. C. B. Brown, Syracuse, Ill.
- 44 *Fetal Death in Utero. C. G. Smith, Red Bud, Ill.
- 45 *Psychic Aberrations Associated with Diseased Prostate. J. F. Percy, Galesburg, Ill.
- 46 New Unit of Energy in Infant Feeding. T. G. Allen, Chicago.
- 47 Influence of Specialism on the General Practitioner. D. W. Reid, Jacksonville, Ill.
- 48 *Climate Fallacy. L. S. Peters, Silver City, N. M.
- 49 Borderline of Mental Disease. F. P. Norbury, Jacksonville, Ill.
- 50 Problem of the Public Care of the Insane. A. Meyer, New York.

40. Placenta Prævia.—Hollenbeck holds that considering the high fetal mortality under any or all forms of treatment, and that although we may deliver a living child, few survive beyond the second or third week, and that of those who do survive, few become robust; and considering also that it is granted that the best procedure for the mother is worse for the child, and *vice versa*, it is incumbent on us, if any form of treatment assures a low maternal mortality, to adopt that treatment. The best results so far attained are by terminating pregnancy immediately on a diagnosis of placenta prævia, by bringing down a foot and leaving Nature to complete the labor. As great precautions and preparations are necessary as though laparotomy were to be performed. If the head present external version may be attempted. That failing, when the cervix is dilated suffi-

ciently to admit two fingers, the method of Braxton Hicks or combined version can be done. This operation in transverse and breech presentations varies only in degree, but the object and results are the same.

44. 48. Abstracted in THE JOURNAL, June 27, 1908, p 2152

45. **Prostatic Psychoses.**—Percy reports three cases, which he thinks indicate that there is a clinical physiopathology of the prostate which expresses itself chiefly through the cerebrospinal and sympathetic nerves as a functional disease, just as the perverted physiology of the thyroid gland expresses itself through the same system of nerves with the same results, so far as a mere brain expression is concerned.

Journal of the Indiana State Medical Association, Fort Wayne November

- 51 Scoliosis D Ross Indianapolis
- 52 *Obstruction of the Bowels from Traumatism J H Ford, Indianapolis
- 53 Relation of Physicians and Druggists S. E. Earp, Indianapolis
- 54 Relation of the Pharmacist to the Physician J R Francis Indianapolis
- 55 *Plea for State Control and Treatment of Dipsomania, inebriety and Drug Addiction A L Wilson, Indianapolis
- 56 Atypical Pneumonia C R Sowder, Indianapolis
- 57 Dermoids H G Nierman Fort Wayne.

52. **Traumatic Obstruction of Bowels.**—Ford discusses the diagnosis and etiology of traumatic intestinal obstruction, giving peritonitis first place. The most serious condition is postoperative ileus. If the bowel can not be moved by laxatives, surgical intervention is the only recourse. Ford reports a case in which obstruction followed pus appendicitis. He believes that many cases of postoperative ileus could be relieved by thoroughly washing the intestinal tract. In obstruction due to traumatism operation must be prompt before peritonitis sets in.

55. **State Control in Dipsomania, Etc.**—Wilson urges absolute control, which can be secured only by legislative enactment, together with good hygienic surroundings, a pleasant environment, good feeding, clothing and housing, with proper medical treatment for a sufficient length of time as curable measures in curable cases. State guardianship is more feasible than municipal or county. An institution such as he suggests should be founded on broad general principles, and to reach all who should come under its influence, it should have the moral and financial support of the state, should be primarily a hospital, free from political and mercenary control, under competent medical management having full powers and right of selection of assistants and subordinates. Its doors should be open to all who sufficiently long have been residents of the state. Admittance, both voluntary and by legal commitment; but once in, all patients should be subject to the same rules and regulations. In regard to the incurable cases, Wilson says: 'Give the father a chance to recover from his excesses and again to assume the responsibilities of life. But if he proves to be incorrigible and will not do the right, then free the family from his presence and the responsibility of his support. There is a law now in this state (Indiana) constituting child desertion a felony. This is right; but if child desertion, in the sense of a parent separating himself from his child and leaving it without support, is a felony with a penalty attached, what shall be said of the man who not only fails to provide for his wife and children, but adds the burden of his own support, besides other abuses he too often heaps on them?'

California State Journal of Medicine, San Francisco November

- 58 *Cancer of the Uterus. How May We Secure Its Early Recognition? W F Wakefield San Francisco
- 59 Indications for Mastoid Operation D H. Brownbridge, Fresno
- 60 The Pure Milk Problem. G H. Kress, Los Angeles.
- 61 Sanitary Supervision of Bakeries and Restaurants L M Powers, Los Angeles
- 62 *Luetic Stigmata of Importance to the General Practitioner. H C. Moffitt, San Francisco
- 63 Syphilis as Seen by the Eye Ear, Nose and Throat Specialist H. G. Taomas Oakland
- 64 Syphilis of Bones and Joints S J Hunkin and G A Harker, San Francisco
- 65 Early Recognition and Treatment of Squint. W. F. Blake, San Francisco.

58. **Early Recognition of Cancer of Uterus.**—Wakefield makes the following suggestions:

1 Every woman should be examined by her accoucheur, after uterine involution has taken place, to ascertain if any material injury to the cervix has resulted from the labor; and if material injury is found, the cervix should either be repaired at once, or the patient required to present herself for examination once or twice a year, so that repair may be advised before the patient's future is menaced, should chronic inflammatory changes supervene.

2 All chronic lacerations of the cervix with concomitant inflammatory sequelae should be repaired at once; all chronic inflammations of the cervical or corporal mucous membrane should receive appropriate treatment; all interstitial or submucous tumors of the uterus should be removed.

3 Physicians should keep themselves constantly mindful of their responsibility in the matter. A small piece of tissue should be excised from any suspicious looking patch on the cervix and subjected to histologic study, even though no symptoms pointing to cancer are present. All abnormal hemorrhages should be thoroughly investigated, and if no cause is evident on ordinary examination, the uterine cavity should be thoroughly curetted and serial sections made of the pieces of mucous membrane thus obtained, in an effort to prove or disprove the presence of adenocarcinoma of the body or upper cervical canal.

4 Women should be educated to understand that danger attends the neglect of cervical injuries and chronic uterine inflammations; that every woman who has borne children may have such injury or such inflammation; that it would be wise for all women thus informed to ascertain from some competent physician whether any pelvic condition exists that would menace her future. Indeed, women would subserve their own best interests if they would make annual or semiannual visits to some good, wise physician, as a prophylactic measure, during the cancer period.

5 Women must be taught that excessive bleeding is never a coincident of the normal menopause, but is a symptom of great import, which should be immediately investigated.

6 A cancer committee should be appointed by the presidents of our different state medical societies, the duty of which will be to study the question generally and evolve the best means of keeping the profession in touch with the subject and furthering, in some dignified and practical way, the dissemination of such knowledge as should be possessed by intelligent women.

62 **Luetic Stigmata.**—Moffitt discusses in detail the stigmata shown, respectively, by the facies, skin, glands, bones, nose, mouth, eye, vascular system, nervous system and also certain unclassified signs, particularly in regard to their importance for the general practitioner.

Journal South Carolina Medical Association, Greenville November

- 66 *Etiology of Pellagra—The Italian Maize Theory, or the Theory of Lombroso J J Watson Columbia, S C
- 67 *Protozoan Theory of Pellagra J H. Taylor, Columbia, S C
- 68 *Pellagra—Problems in the Study of Its Etiology E J Wood, Wilmington, N C
- 69 Etiology of Pellagra N M Moore, Augusta, Ga
- 70 Roumanian Theory as to the Cause of Pellagra J L Thompson, Columbia
- 71 *Diagnosis and Treatment of Pellagra J. W. Babcock, Columbia
- 72 Pathology of Pellagra H H Griffin, Columbia
- 73 *Clinical Observations of Pellagra H. E. McConnell, Chester, S C
- 74 Four Cases of Pellagra G A Neuffer, Abbeville, S C
- 75 *Personal Experience with Some Cases of Nervous and Mental Diseases Showing the Pellagra Syndrome I M Taylor, Morgantown, N C
- 76 Examination of the Eves in Eighteen Cases of Pellagra L M Whaley Columbia
- 77 *Theory as to the Cause of the Recent Appearance in This County of Pellagra J. McCampbell, Morgantown, N C

66 **Pellagra.**—Watson describes the maize theory of Lombroso and the experiment on which it is based.

67 **Idem.**—Taylor marshals the points against the maize theory and discusses the similarity of pellagra and protozoan disease. He thinks it likely we may yet find pellagra to belong to the latter class.

68. **Idem.**—Wood suggests that the corn, whether diseased or sound, may form a culture medium on which an organism specific to the disease grows and develops. This would explain the advantage of heating the corn. The *Acarus farina* may possibly play a part in the entrance of this suspected organism into the kernel of otherwise sound corn.

71. **Idem.**—Babcock says that evidence is accumulating of the existence of pellagroid disease in North Carolina, South Carolina, Georgia, Alabama and Tennessee. It has been sporadically observed in Louisiana, Texas, Arkansas and Virginia. It presents both resemblances and striking differences to the Italian and Egyptian forms. Among the latter are the overwhelming number of females attacked, the great and early mortality, and the unusual invasion by the rash of unexposed parts of the body. By exclusion we are driven to a diagnosis of, possibly, pellagra. The association in all the author's cases can not be denied. The communica-

for investigation. Atoxyl seems to hold out the from drugs, but Fowler's solution can not be cast aside.

73. *Idem.*—McConnell asks for the disuse of such terms as "awful," "dreadful," and "leprous," as applied in the newspapers to pellagrous patients. The terms are not justifiable and they have a very depressing effect on the patient.

75. *Idem.*—Taylor holds that pellagra has been with us for a long time, and that we have been misled by the brevity of the text-book statements. He is sure that he has been seeing these cases for 20 years, and that many such have been seen and dismissed under diagnoses of chronic diarrhea, intestinal indigestion, eczema and sunburn. Many so-called serofulous negroes are really pellagrous.

77. *Idem.*—McCampbell suggests that the present-day methods of intensive farming may be responsible for the recent appearance of pellagra in this country. It is a very common practice to cut the corn stalk and all at the ground, often in a state of immaturity, in order that the ground may be planted with some other crop, usually wheat or rye, and this corn is packed wet and possibly green, in a shock, where conditions are favorable for fermenting and heating and possibly the development of the products which give rise, when eaten, to the disease. This method of harvesting is in contrast to that prevailing some years ago, when it was the custom to cut the top just over the ear, leaving the ear and remainder of the stalk to stand in the field until they were both fully matured and perfectly dry, before gathering. At this time nothing was cut as before described, except a late crop to escape the frost, and this was usually fed to horses and cattle, being considered unfit for bread, and it is suggestive that, while pellagra was unknown, "blind staggers" in domestic animals was comparatively common. Further confirmation of this theory is found in the fact that in Italy, and especially in the Lombardy and Piedmont districts, the hot bed of pellagra, the manner of harvesting corn is somewhat similar to that now prevailing in this country, inasmuch as owing to climatic conditions it is necessary to gather corn in a partially green state, or at least in a condition necessitating further drying; and McCampbell understands that the Italian government has issued special instructions for this procedure, recognizing that it was in a faulty curing process that the poison developed.

Cleveland Medical Journal

November

- 78 Experience with the Cutaneous Tuberculin Reaction and the Findings in Two Hundred Postmortems on Children. C. von Pirquet, Vienna.
- 79 Malnutrition. M. J. Lichty, Cleveland.
- 80 *Mechanics of Lateral Curvature (concluded). H. O. Feiss, Cleveland.
- 81 Medical Progress in the Orient. I. Ludlow, Cleveland.

80. *Lateral Curvature.*—Feiss in this issue concludes his serial article by the following restatement of his principles: There are certain conditions in normal posture in which asymmetric forces bear on the skeleton. These strains in the skeleton may best be studied in terms of distortion, although, of course, no permanent distortion takes place in the normal. In this way it is found that the peripheral stresses are of great significance, implying tendencies (as read in terms of distortion), which are suggestive of the fixed distortions seen in the pathologic skeleton. But to explain those pathologic facts on a basis of normal tendencies we have to assume that the vicious forces become so great in relation to the skeletal resistance, that the bones which are under strain finally take a permanent set. This may readily be supposed on the grounds of repetition, prolongation or diminished resistance in the skeleton. On these assumptions we may understand how certain deformities take place directly. Such direct deformation, however, seems to occur only in a given part—namely, in the thorax, so that following this, the body mass as a whole must readapt itself to conditions of erect balance. This implies a second adjustment of the deformed thorax to the rest of the body, and this is the final adjustment which is said to represent the state of lateral curvature.

Southern California Practitioner, Los Angeles

November

- 82 Vaccines and Sera. E. L. Leonard, Los Angeles.
- 83 The Opsonic Technic. J. E. Pottenger, Monrovia.
- 84 Opsonic Index—A Technic Utilizing the Ordinary Incubator. G. H. Kress, Los Angeles.
- 85 Role of the Immunizator in Modern Medicine. G. Martyn, Los Angeles.
- 86 Effect of Climatic Conditions on Important Symptoms in Tuberculosis. C. C. Browning, Monrovia.
- 87 Illustration of a Localized Traumatic Lesion of the Cortex. W. W. Watkins, Phoenix, Ariz.
- 88 *Gastroptosis in Tuberculous Patients—A Report of Fifty Cases. B. Reed and F. N. Robinson, Los Angeles.

88. *Gastroptosis in Tuberculous Patients.*—Reed and Robinson report and discuss a large series of cases of gastroptosis in tuberculous subjects. Of 221 patients under treatment (men 108, women 113), 133 were carefully examined abdominally, on account of gastrointestinal symptoms. In 50 (women 28, men 22) or 37.6 per cent., there was more or less prolapse of the stomach. In 44 of the 50 cases the lower border of the stomach was at or below the umbilicus. In 6 of 28 cases in women and 6 of 22 cases in men, the lower border rested on the pelvic viscera, and in only 4 cases in women and 2 cases in men was it above the umbilicus. In 10 cases (9 women, 1 man) the gastroptosis was accompanied by movable right kidney. The authors conclude that in all known tuberculous cases we should search for and correct any existing visceral displacement as a helpful preliminary to the cure of the major disease; and to prevent the development of tuberculosis in persons predisposed thereto by reason of lowered nutrition, the same precaution is equally important.

Atlanta Journal Record of Medicine

November

- 89 *Long and His Discovery. I. H. Goss, Athens, Ga.
- 90 Should the Appendix be Removed in All Cases in which the Abdomen is Opened for Other Causes. L. C. Fisher, Atlanta, Ga.
- 91 Reciprocity Between States. A. A. Kent, Lenox, N. C.
- 92 Amebic Dysentery. G. M. Niles, Atlanta, Ga.
- 93 Importance of a Thorough Knowledge of Biology, Bacteriology and the Circulation of the Blood for the Successful Application of Serotherapy. J. C. Grady, Kenly, N. C.
- 94 Tuberculous Patients Treated with Ichthyolated Emulsion Compound. J. R. Williams, Greensboro, N. C.
- 95 Serotherapy in Tuberculosis. L. C. Rouglin, Atlanta, Ga.

89. *Long and Ether Anesthesia.*—Goss gives a biographic note of Crawford W. Long and champions his claim to the discovery of ether anesthesia, bringing forward evidence to show that he used it in practice in 1843. He ascribes Long's not at once publishing his discovery to the fact that he was a young medical practitioner in an obscure village without hospital or association backing to confirm his results, and that so startling a claim would have exposed him to the adverse criticism of his elders. Circumstances were entirely different 65 years ago from what they are to-day with regard to the publication of discoveries.

St. Paul Medical Journal

November

- 96 The Tubercle Bacillus and Its Mode of Action. F. F. Westbrook, Minneapolis.
- 97 Early Diagnosis of Pulmonary Tuberculosis. W. J. Marckey, Walker, Minn.
- 98 Treatment of Patients with Pulmonary Tuberculosis, Discharged from a Sanatorium. H. L. Taylor, St. Paul.
- 99 Tuberculosis of the Skin. B. Foster, St. Paul.
- 100 Surgical Tuberculosis. W. Courtney, Brainerd, Minn.
- 101 *Ventilation. E. R. Swan, Cedar Rapids, Ia.

101. *Ventilation.*—Swan discusses ventilation in general, and in particular says that the subject of ventilation of cars has been agitated for years, and yet nothing has been done toward adequate ventilation. That this can be done there is no doubt, but it never will be done until the government investigates and compels the railroads to ventilate their cars. In the meantime, millions of lives are being endangered by breathing impure vitiated air. The ravages of tuberculosis will never be eradicated until we have better sanitation in the homes, schools and railway cars of the country. We can not build sanitariums enough to prevent tuberculosis so long as the breeding places for the disease are allowed to exist. Until compulsory ventilation laws are passed and strictly enforced, tuberculosis will prevail.

New Orleans Medical and Surgical Journal

November

- 102 Clinical Results with Antistreptococcus Serum. W. D. Rous-
sel, Patterson, La.
- 103 *Fracture of the Patella: Radiographic Illustrations of
Results of Treatment by Suture. J. M. Batchelor, New
Orleans.
- 104 Subacute or Chronic Joint Disease, Non-Tuberculous. Diag-
noses and Treatment. E. S. Hatch, New Orleans.
- 105 Infectious Arthritis. J. T. Halsey, New Orleans.
- 106 Clinical Significance of Growing Pains in Children. W. W.
Butterworth, New Orleans.
- 107 Congenital Ichthyosis with Report of a Case. J. J. Wymer,
New Orleans.
- 108 Inducanuria in Childhood. Report of a Case. E. D. Fenner,
New Orleans.

103. Fracture of the Patella.—Batchelor relates his experi-
ence in dealing with eleven cases of fracture of the patella,
and gives radiographic illustrations in seven cases. He
formulates the following conclusions:

1. Bony union rarely takes place before the expiration of thirty
days.
2. Bony union is possible when there is, after suture, a separa-
tion of the fragments equal to three-eighths of an inch.
3. Whenever general anesthesia is directly contraindicated, such
patients may be operated on with the employment of local analgesia
and bony union may be confidently expected.
4. The usual requirements of the operation are, first, preliminary
fixation of the joint for from forty-eight to seventy-two hours, to
allow complete arrest of hemorrhage; secondly, suture of the lateral
tear of the capsule, thereby restoring the reserve extensors and
obviating the danger of atrophy of the quadriceps; thirdly, absolute
asepsis and immediate closure of the joint without drainage.

St. Louis Medical Review

November

- 109 *Practical Notes on Vesical Tumors. G. F. Lydston, Chicago.
- 110 *Theory, Technic and Practical Results of the Reaction for
the Serodiagnosis of Syphilis. J. W. Marchildon, St. Louis.
- 111 Ocular Tuberculin Reaction. Observations of One Hundred
Cases with a Summary of the Observations of Others.
A. W. McAlester, Kansas City, Mo.
- 112 *Influence of Suggestion as an Adjunct in the Administration
of Anesthetics. H. S. Munro, Ellaville, Ga.

109. Published in the *Lancet Clinic*, Nov. 28, 1908, and
Louisville Monthly Journal of Medicine and Surgery, Decem-
ber, 1908; abstracted in *THE JOURNAL*, Dec. 19, 1908, p. 2186.

110. Serodiagnosis of Syphilis.—Marchildon traces the his-
tory of our recent acquirements in the knowledge of syph-
ilis, and especially of the Wassermann reaction. He de-
scribes the technic, discusses its practical results, and sums
up its uses as follows:

The reaction is of value in all cases in which an ulcer has
been present on the genitalia, the nature of which is not clear.
Within certain limits the negative reaction is valuable. If there
is a tumor or an infection with symptoms, with a negative serum
reaction, we can conclude that it is not syphilitic, that it is not a
gumma. If there is an acute exanthem, a skin lesion of some kind,
and a negative serum reaction, we can say that it is certainly not
due to syphilis.

In the presence of hard chancre with a negative Wassermann
reaction the chancre may be excised surgically and syphilis aborted.
With a chancre present and serum reaction positive, then general
infection has taken place and excision of chancre can be of no
benefit.

In differential diagnosis of many cases, such as pseudoluetic
rheumatism, syphilide about the nose, in pregnant women with a
suspicion of syphilis it is important.

The reaction is of value in the selection of a wet nurse and of
nurse girls, in order to tell if syphilis has been present. It is being
used in Germany as a routine procedure in the examination for
life insurance.

It is of value in the diagnosis of diseases of the nose and
throat, in cases belonging to internal medicine, and in
fact, whenever the question of syphilis comes up, even in consent
to marry.

112. Suggestion and Anesthesia.—Munro urges the impor-
tance of suggestion as an aid in inducing anesthesia. It re-
duces the danger and decreases the amount of anesthetic
needed. He cites his observation of the administration of
anesthesia at the Mayo's Clinic, Rochester, as an instance of
success attendant on the combination. Munro particularly
opposes that lack of self-confidence that leads many persons
—while admitting that suggestion is undoubtedly a powerful
and, when properly used, a beneficent force in the hands of
certain persons—to doubt their own capacity to utilize it,
even when they have made a study of it. Munro cites in-
stances of operations performed with less than 30 minims of
chloroform after adequate suggestive preparation.

American Journal of Surgery, New York

November

- 113 Various Clinical Types of Acute Dilatation of the Stomach,
with Experimental Researches. R. C. Kemp, New York.

- 114 *Use of the Wax-Tipped Catheter for Diagnosis of Kidney
Stone in the Male. W. Ayers, New York.
- 115 Therapeutic Uses of Active, Passive and Combined Hyperemia.
E. P. Fowler, New York.
- 116 Dysmenorrhea. R. A. Murray, New York.
- 117 Acute Perforating Gastric and Duodenal Ulcer (continued).
E. Elliot, New York.

114. Wax-Tipped Catheter in Kidney Disease.—Ayers dis-
cusses favorably the use of the wax-tipped catheter, which,
he says, is fully as valuable in the male as in the female,
when properly used. The only cystoscope that can be used
for this purpose is Brown's old model with the projecting
telescope. Ayers prefers pure beeswax for tipping the cath-
eter. He describes the method, and emphasizes the fact that
the ureters vary greatly in length. From measurements with
the catheter he puts the average length at from 12 to 14
inches; any obstruction below 12 inches is probably in the
ureter. Given a patient with a clinical picture of kidney
stone, the question of operation always includes that of the
condition of the other kidney. Bilateral catheterization is,
therefore, necessary, and at the same time the wax-tipped
catheter may be passed and may make an x-ray picture un-
necessary. He reports two cases which he considers prove
absolutely the reliability and accuracy of the waxtipped
catheter in the male. It would not be possible to demon-
strate a stone in the kidney tissue by this method; also it
would be possible to miss a stone in the bottom of the
deeply sacculated renal pelvis, but in this case we should
find by the catheter a large amount of residual pus, which
would make an operation indicated, provided the other kid-
ney was in good condition. When the evidence given by the
wax-tipped catheter is positive there is no question of the
diagnosis.

Archives of Pediatrics, New York

November

- 118 Cutaneous and Ocular Tuberculin Tests in Infants Under
Twelve Months of Age. H. L. K. Shaw, Albany, N. Y.
- 119 Congenital Hypertrophic Stenosis of the Pylorus, with the
Report of Two Cases Successfully Treated by Gastrojejunos-
tomy. E. W. Mitchell and J. C. Oliver, Cincinnati, Ohio.
- 120 Present Knowledge of Whooping Cough. H. H. Donnelly,
Washington, D. C.
- 121 *Leucocyte Count of Normal "Institutional" Children and
Those Suffering with Pertussis. H. O. Mosenthal, New
York.
- 122 Erythema in a Subject Suffering from Purpura. F. Huber,
New York.
- 123 *Simple Method of Circumcision in the New-born. W. R.
Wilson, Philadelphia.
- 124 Contractures Following Epidemic Cerebrospinal Meningitis
in a Boy of Ten. H. C. Carpenter, Philadelphia.
- 125 *Otitis Media Propagata. Mucopurulent Aural Discharge Due
to Nasal Catarrh. P. Fridenberg, New York.
- 126 Diphtheria Following Tonsillectomy and Adenectomy. I. S.
Wile, New York.
- 127 Sarcoma of the Kidney. C. C. Rush, Philadelphia.

121. Leucocyte Count in Pertussis.—Mosenthal discusses
the leucocyte count in institutional children at the New York
Foundling Hospital, and a subsequent similar observation
in regard to pertussis, which leads him to the following,
among other, conclusions: The average normal leucocyte count
of "institutional" children is (13,850 to 16,391) somewhat
higher than that usually given. During the catarrhal stage
of pertussis an increase is seen in the leucocytes approxi-
mating double the normal, and the number of mononuclear
cells is increased about 5.5 per cent. at the expense of the
polymorphonuclear cells. In the convulsive stage similar,
though less marked, changes occur in the blood count.

123. Abstracted in *THE JOURNAL*, July 11, 1908, p. 156.

125. Otitis Media.—Fridenberg describes a case of aural
catarrh dependent, primarily, on a secretion or accumulation
of mucopus in the posterior nares, and possibly the
Eustachian tube, and its discharge from the middle ear
through a generally spontaneous perforation of the drum.
It is apparently frequent in children as acute catarrh; di-
minishes *pari passu* with the nasopharyngeal condition, recurs
with every cold in the head, and particularly with acute spe-
cific diseases. There is a chronicity with intervals of ap-
parent cure and seemingly *de novo* attack. During the last
few years, Fridenberg has observed a large number of these
cases and in several of them pain, diminished hearing, occa-
sional headache and dizziness and long-standing discharge

competent otologists to suggest a radical mastoid n, which, in the present type of case, Fridenberg considers unnecessary. Such patients are to be treated by attacking the source of the discharge, applying to the posterior nares silver nitrite, from 5 to 20 per cent.; resorcin alcohol, 50 per cent., or iodoglycerin, 10 to 25 per cent., and by the removal of adenoids whenever present.

Journal of Advanced Therapeutics, Rahway, N. J.

November

- 128 Electricity in Errors of Refraction. S. J. Harris, Boston.
- 129 The High Candle-Power Lamp: Case from Practice. S. T. Birdsall, Glens Falls, N. Y.
- 130 Advanced Therapeutics of Arthritis Deformans—Progressive Poly-Articular. S. J. Wright, Akron, Ohio.
- 131 Roentgen-Ray Diagnosis of Diseases of Bones and Joints. A. Granger, New Orleans.
- 132 Cataphoric Operations as Modified by the Topographic Situation of Particular Neoplasms, with Detailed Report of Cases. G. B. Massey, Philadelphia.

Journal of Cutaneous Diseases, New York

November

- 133 *Modern Dermatologic Pathology as Related to Practical Therapeutics. M. B. Hartzell, Philadelphia.
- 134 *Modern Dermatologic Pathology. Its Relation to Therapeutics. C. J. White, Boston.
- 135 Syphilis in Relation to General Paralysis of the Insane. A. P. Biddle, Detroit.
- 136 Another Case of Hyponomoderma (Larva Migrans) Demonstrating the Immediate Curative Effect of Chloroform Injected *in Situ*. M. B. Hutchins, Atlanta, Ga.
- 137 Report of Two Cases of Blastomycosis Cutis. M. B. Hutchins, Atlanta, Ga.

133. Modern Dermatologic Pathology.—Hartzell gives examples, to show how little modern pathology has actually influenced the treatment of diseases of the skin. We employ much the same remedies as our predecessors did, though we use them on somewhat different theoretical grounds. The use of bacterial vaccines and of various sera promises to put the treatment of many diseases of the skin on a thoroughly scientific basis, dependent on our knowledge of pathology, and to make it more successful than ever before.

134. *Idem*.—White reviews the seat and nature of changes in cutaneous diseases, and our classical knowledge as regards internal and external administration of drugs, and enumerates as follows the application and discoveries of the last 10 or 15 years that have rendered invaluable service: 1, New drugs; 2, radiotherapy; 3, electrotherapy; 4, actinotherapy; 5, hydrotherapy; 6, organotherapy; 7, psychotherapy; 8, congelation; 9, hyperemia; and lastly, 10, the wonderful and pregnant theories and applications of the various sera. He discusses each of these heads at length, dwelling especially on the various conditions in which vaccines and serums have proved of service.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

December 12

- 1 *Difficulties in Diagnosis and Treatment of Suppuration in the Neighborhood of the Diaphragm. W. H. White.
- 2 *Malformation of the Hind End of the Body. A. Keith.
- 3 Food Extracts Made from Yeast. A. C. Chapman.
- 4 *Epidemic of Influenza Characterized by Edema of the Eyelids. N. I. Spriggs.
- 5 Rupture of the Bulbar Branch of the Internal Pudic Artery. J. S. Mackintosh.
- 6 Case of Buphthalmia. J. H. McIlroy.

1. Suppuration About the Diaphragm.—White discusses the malignant disease simulating suppuration, suppuration below the diaphragm, and suppuration above the diaphragm. With regard to hepatic abscess, he reports certain cases, which suggest the following reflections:

- 1. When considering the possibility of hepatic abscess avoid confusion with (a) malignant diseases of the liver, (b) tropical liver, or hepatitis, (c) malaria, (d) recurrent influenza.
- 2. By percussion seek for a small local increase upward of hepatic dullness; this is due almost always to abscess or hydatid; it is hardly ever caused by growth or gumma.
- 3. Local tenderness is of great help in locating abscess.
- 4. The occurrence of solitary hepatic abscesses in Great Britain with or without intestinal ulceration, and in the tropics apart from amebic dysentery, and the fact that the abscess is solitary, show that we are far from understanding the method of production.

5. If an abscess is present, and has not ruptured in such a way that the pus ultimately can be discharged outside the body, it should be opened at once, and probably it is usually better to do this in India rather than to send the patients home for operation.

6. Abscesses may be latent in the liver for years and give rise to symptoms only occasionally.

7. We often see in Great Britain patients in whom a hepatic abscess is discharging into the lung. Because such abscesses are often very small, often deep seated, and rarely, owing to its frequent discharge, contain much pus, they may be very difficult to find surgically; therefore, whenever possible, the patient should be given the chance of open-air treatment, change of climate, and good food.

8. The cure of such patients may be accelerated by the administration of the appropriate vaccine.

With regard to gallstones, White urges on physicians the propriety of having them removed by a competent surgeon, even though they are not producing dangerous symptoms. He points out that subphrenic abscess may be due to appendicitis when there is no evidence whatever of disease in the appendicular region; for the trouble may be confined to the end of an appendix several inches long and pointing upward. He discusses empyema at considerable length.

2. Malformations of the Hind End of the Body.—Keith discusses a series of specimens from the Royal College of Surgeons Museum, illustrating malformations of the rectum and anus, in males and females. In regard to males he considers those cases in which the rectum (1) opens into the urethra; (2) ends as a fibrous cord, at or above the base of the prostate; (3) terminates in a fibrous cord at the site of the proctodeum; (4) ends blindly at the proctodeum. He next discusses the embryologic basis of rectal malformations, and considers it possible that the key to these abnormalities may be found in a primary defect of the sexual glands. With regard to females he discusses cases in which the rectum (1) opens into the navicular fossa of the vulval cleft; (2) ends as a fibrous cord in connection with the vagina; (3) ends blindly or as a fibrous cord at the site of the proctodeum. He further considers certain miscellaneous conditions, as well as abnormalities of the rectum in domesticated animals, and discusses the development of the proctodeum and the results of operation.

4. Edema of Eyelids in Influenza.—Spriggs reports an epidemic of influenza which leads him to the conclusion that edema of the eyelids, generally associated with bad frontal headache, may be an early symptom of influenza. This may or may not be followed or accompanied by pyrexia or other general symptoms.

Lancet, London

December 12

- 7 Pathology and Treatment of Diabetes Mellitus, Viewed by the Light of Present Day Knowledge. F. W. Pavy.
- 8 Agglutinating Power in Tuberculous Patients: Serum Diagnosis and Serum Prognosis. P. Courmont.
- 9 Milk Supply for Infants; Recent Aspects and Possibilities. W. Ewart.
- 10 Neurasthenia Complicated with (?) "Vaso-Vagal Attacks." M. M. Burgess.
- 11 Case of Cerebellar Abscess Following Middle-Ear Suppuration; Operation: Death. G. N. Biggs.
- 12 Lateral Sinus Thrombosis with Pyemic Pulmonary and Pericardial Complications, etc. Operation: Recovery. J. Mackie and H. B. Tawse.
- 13 Simple Method of Obtaining a Preparation of Living Isolated Leucocytes. C. W. Ponder.

Medical Press and Circular, London

December 2

- 14 Symptoms and Diagnosis of Subphrenic Abscess. M. Lance.
- 15 Menthol and Its Internal Uses. M. Young.
- 16 Operative Treatment of Spinal Caries. T. S. Kirk.
- 17 Channels of Entrance of Tuberculosis. S. Bernheim.

December 9

- 18 Incontinence of Urine and Its Treatment. C. A. Ball.
- 19 *Suppuration in Appendicitis. E. M. Corner.
- 20 Malunion of Fractured Leg Bones. F. S. Heaney.
- 21 Treatment of Eclampsia. O. Osterloh.

19. Suppuration in Appendicitis.—Corner summarizes his article as follows: Suppuration is almost universal in appendicitis; in patients recovering without the need of operation, the pus is discharged by way of the appendix almost always; if the temperature is raised for as long as four days, pus is present; if there is a mass in the abdomen, pus is present, often discharging satisfactorily internally about three times as often into the small bowel as into cecum; that temporary fecal fistulas are common with appendix abscess; that, if such fistulas communicate with a hollow viscus and persist, they

are a great danger in the operation of appendicectomy done in the "quiet interval"; that a fistulous opening in the bowel may lead to an intestinal abscess; that operation be done for signs and symptoms rather than for "evil prophecies"; that in the future, far more operations will be done in the acute stage and fewer in the quiet stage; that too small an incision must never be used through which to remove an appendix in the quiet interval; that, finally, appendicitis owes its danger to life to its septic character, and that the presence of pus is not necessarily an indication for operation, being almost universal in the disease.

Clinical Journal, London

December 9

- 22 Diseases of Miners, Woolsorters and Others I M Sandwith
23 Diagnosis of Malignant Disease of the Liver H D Rolleston

Deutsche medizinische Wochenschrift, Berlin

Nov 12, XXVI, No. 46, pp 1969-2008

- 24 *Influence of Practice and Habit on the Course of Reflex and Automatic Processes. (Einfluss der Übung und Gewöhnung auf den Ablauf reflektorischer und automatischer Vorgänge) G Treipel
25 *Finger Reflex (Fingerbeugerreflex) L Jacobsohn
26 *Action of Powerful Electric Current on Animal Body. (Wirkung des Starkstromes auf den tierischen Körper.) Rodenwaldt
27 *Apparatus for Application of Hyperemic Treatment in Gynecology. (Anwendung der Bierischen Stauung bzw Saugmethode in der Gynäkologie) L Seeligmann
28 Serotherapy of Pneumococcus Infection of Eye. (Spezifisches Serum bei der Pneumokokkeninfektion des Auges—*Ulcus serpens*?) P Römer
29 *Pneum
30 Traumatic Alopecia Wechselmann

24. Influence of Practice and Habit on Reflex and Automatic Processes.—Treipel ascribes to some abnormal habit, frequently casually acquired, many morbid disturbances in respiration, heart action and gastrointestinal functioning. Practice and habit are shown by the examples cited to have an important influence in some cases on certain functions of the body, and on the therapeutic influencing of various affections. Persons unable to tolerate certain articles of food, such as eggs or strawberries, harmless for others, can be trained to tolerate them by commencing with small amounts and educating them to tolerance. This has been done with children who had an idiosyncrasy against eggs. Just as setters and pointers can be trained to certain inherited reflex and automatic functions, the functions of the human body can be trained to a far greater extent than is generally realized. The patient must be instructed in respect to the factors and steps of the normal process and his will power called into play and reinforced by various aids, electricity, massage, baths, systematic exercises, etc. The most common example of the influencing of reflex and automatic processes is the chronic constipation that results as the impulse for defecation at a certain regular hour is disregarded. The warning reflex grows weaker and weaker and finally ceases altogether, but can be regained by systematic training.

25 The Finger Reflex Sign.—Jacobsohn describes a reflex which can be elicited in the fingers in spastic paralysis of the upper extremity of cerebral origin, analogous to Babinski's toe reflex. The patient lays his forearm on the physician's hand, the thumb up, the fingers lightly extended. A slight tap with the percussion hammer on the lower end of the radius causes no change in the fingers under normal conditions; they remain straight. But in case of the presence of spastic paralysis, the fingers bend, as the toes bend in the Babinski sign. He has found this finger bending reflex constant in this form of paralysis. Bechterew has called attention to approximately the same reflex, entitling it the carpo-metacarpal reflex; he classed it with the plantar reflex.

26 Treatment of Electric Accidents.—Among the points learned in the course of the experimental research reported was that the heart was always severely injured when it lay in the direct route of a powerful electric current, the blood pressure dropping and the heart action becoming arrested. But when the heart was not in the direct line of the current the blood pressure rose, probably from irritation of the splanchnic nerve. The tracings of heart action and respiration show that the current never takes a roundabout route,

and, further, that there is no particular personal danger for the one aiding the injured person if he uses his foot to push or draw the injured person out of reach of the live wire. The hands should not be used unless thoroughly protected. The electric discharge affects the heart and respiration separately, the respiration being arrested by the tetanus induced by the current; after this subsides, natural respiration may return. The outcome of the accident depends exclusively on the amount of injury done to the heart. Some of the animals spontaneously started to breathe naturally again after subsidence of the tetanus, but unless the heart action revived, the animals all died. These cases of physiologic return of the respiration, without the revival of the animals, show that artificial respiration is useless unless the heart functioning can be restored. When the heart started to work before respiration returned, all the animals recovered, even when there was a long interval before the return of respiration. In case of an electric accident, therefore, if the pulse is beating especially if the tension is high, no further measures are required for resuscitation—venesection, to reduce the blood pressure, is directly contraindicated. When the heart is not in the direct line of the current, respiration starts up as soon as the traumatic tetanus has subsided. In none of the experiments did the physiologic or artificial respiration, no matter how long continued, revive the paralyzed heart, while, on the other hand, a slowly reviving heart starts to work again of itself, even after arrest of the respiration. The returning heart action is able to start up the arrested respiration, even after a long pause, and this occurs whether the heart action was restored spontaneously or by direct massage of the organ. The experiments show thus that a low blood pressure is a sign of direct injury of the heart; a high blood pressure can be accepted as a sign that the danger is past. Treatment in an electric accident should therefore aim to stimulate the heart, the organ should be massaged without delay in case it is not working distinctly, with tonics subcutaneously, and, if available, application of the Leduc current according to L. Rabinowitsch. In these directions, Rodenwaldt advises directly contrary to Jellinek, who lays the greatest stress on artificial respiration and venesection. Rodenwaldt adds in conclusion that he was able to revive animals by massage of the heart even when the blood pressure was so low that the cornea was entirely soft. Softening of the cornea therefore can not be regarded as a sign of actual death.

27 Suction Hyperemic Treatment of Gynecologic Affections.—Seeligmann gives an illustration of a glass speculum connected with a rubber bulb which allows Bier's hyperemic technique to be applied in chronic metritis, endometritis, amenorrhea, abscesses, etc. He precedes the application of the suction by scarification or a small incision. The method applied at the date of the menses has proved useful in disturbances from the natural or induced menopause. He also applied the method with prompt success in a case of puerperal infection. After aspiration of large amounts of purulent secretion from the uterus the fever subsided. He applies the suction for only ten minutes, but repeats it daily. His experience confirms the advantages of suction treatment of mastitis, stitch-hole abscesses, etc.

29 Essential Hematuria.—Pincus' patient was a woman of 32 who was treated for unilateral hematuria by nephrotomy. The kidney was found surrounded by adhesions, but normal except for some small cysts in the capsule. The patient had no further hemorrhage for two years, when hematuria from both kidneys followed a fall downstairs with some contusion of the kidney region. The massive hemorrhage was evidently the result of chronic inflammatory processes in both kidneys, but the patient did not seem very anemic and the hematuria gradually subsided under conservative measures, disappearing completely in the course of four and a half months.

Wiener klinische Wochenschrift

Nov 12, XXI, No 46, pp 1581-1611

- 31 Transformation of Albuminuria in Morbus Basedowii (Elweisumsatz bei Morbus Basedowii) J. G. G. Golter.
32 Negative Influence of Various Diets (Einfluss verschiedenartiger Diätformen auf dem Grundumsatz bei M. Basedowii) E. Frißman and O. Porges

61. **Oxygen Insufflation for Revival of the New-Born.**—Cavazza recommends a method of restoration of respiration, after failure of the ordinary measures, with which he has been successful in three severe cases. He inhales oxygen from a tank and then by mouth-to-mouth insufflation breathes the oxygen into the child's lungs, stimulating breathing by the reflexes from time to time. In one case of long and difficult labor, asphyxia was marked, but the heart was faintly beating. After half an hour of the oxygen insufflation the temperature rose to normal and the heart gained ground a little, but there was not a trace of respiration. He kept up the insufflations for two hours and three quarters, when signs of restoration of breathing were perceived and the child soon revived. In one case he kept up the insufflation for an hour before the oxygen arrived, the heart action slightly improving under it. Signs of respiration became evident in twenty minutes after the oxygen was used. He takes a breath of oxygen and then one of air, and insufflates into the child's mouth once every two seconds. He believes that the advantages of this measure, as a last resort, counterbalance all the possible drawbacks.

Hygiea, Stockholm

September, LXX, No. 9, pp. 787-898

- 66 *Antiseptic Local Treatment and Prophylaxis of Certain Contagious Diseases. (Motivering och förslag till antiseptisk lokalbehandling vid vissa farsotssjukdomar.) N. Englund.
67 Stones in the Prostate. (Lithiasis prostatica.) G. Ekehorn.
68 Congenital Megacolon. (Hirschsprung'ska sjukdomen.) J. A. Hedlund.
69 Traumatic Neurosis. E. Wikner.

66. **Local Treatment and Prophylaxis of Infectious Diseases.**—Englund agrees with those who demand an active local treatment as indispensable, in connection with other measures, in treatment of diphtheria, scarlet fever, etc., in which the throat and nose are particularly involved, and as a preventive for others liable to contract the disease or to transmit it. He commends as most effectual a gargle of a 1 to 1,000 or 1 to 3,000 solution of iodine trichlorid. He prescribes a 10 per cent. solution, and orders 5 or 6 drops of this to be added to a third of a glass of water, to be used as a gargle from eight to ten times a day. After the gargle he insufflates into the nose and throat, six or eight times a day, a mixture of 12 parts calcium phosphate, 6 parts sodium sozoiodolate, 1 part of some colloidal silver salt, with 1 part sugar of milk, 0.2 part menthol, and 0.3 part sugar. The gargle and insufflation are especially indicated after meals. This local treatment is effectual for all infectious affections of the throat and nose, and should be enforced as a preventive measure in times of epidemics and in the environment of cases of infectious disease. Persons in attendance on the sick must be careful to disinfect not only the hands and clothes, but the nose and throat as well. Isolation of the sick is not enough; before the physician is called to the case, other members of the family are liable to be already harboring the germs.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXX, No. 11, pp. 1037-1120

- 70 Combined Sclerosis of Tracts of White Matter in the Spinal Cord. (Et tilfælde af kombineret strengsklerose.) N. B. Grøndahl.
71 Meningo-Encephalo-Myelitis Suggesting Hysteria. Id.
72 Cyst in Velum Interpositum Causing Sudden Death. (Tilfælde af cyste i tela choroidea forårsagende pludselig død.) Id.
73 Anaphylaxis. S. Widerøe.
74 *Quantitative Tests for Albumin. (Kvantitative albuminbestemmelser.) Id.

74. **Quantitative Tests for Albumin.**—Widerøe describes his experience with the Esbach, Tsuchiya and Christensen techniques and Walbum's albuminimeter. The comparative findings are shown in a diagram. They confirm the superiority of the Tsuchiya phosphotungstic method and the Walbum albuminimeter over the other techniques, and he commends the latter especially to the general practitioner as both simple and reliable.

Ugeskrift for Læger, Copenhagen

November 5, LXX, No. 45, pp. 1277-1300

- 75 Successful Application of Handley's Operation for Relief of Edema in Arm After Removal of Breast. H. Maag.

Upsala Läkareförenings Förhandlingar

XIV, No. 1, pp. 1-106. Last indexed Nov. 14, p. 174

- 76 Principles of Modern Care of the Insane. F. Svenson.
77 Abnormal Development of Skull and Its Influence on the Brain. (Om bathry- och clinocell.) G. Backman.
78 Development of Lachrymal Caruncle. (Om utvecklingen af Caruncula lacrimalis hos människan.) F. Ask.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A TEXT-BOOK OF GENERAL PATHOLOGY. By J. Martin Beattie, M. A. (N. Z.), M.D. (Edin.), Professor of Pathology and Bacteriology, University of Sheffield, and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P., Lecturer on Pathological Bacteriology, and Senior Assistant to the Professor of Pathology in the University of Edinburgh. Cloth. Pp. 475, with illustrations. Price, \$5. Philadelphia: P. Blakiston's Son & Co., 1908.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoen. Von P. Von Baumgarten, o.ö. Professor der Pathologie an der Universität Tübingen, and F. Tangl, o.ö. Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Twenty-second Year, 1906. Paper. Pp. 964. Leipzig: Verlag von S. Hirzel.

HEPATIZING PERNICIOSUM (N.G., N. SP.); A HEMOGREGARINE PATHOGENIC FOR WHITE RATS; WITH A DESCRIPTION OF THE SEXUAL CYCLE IN THE INTERMEDIATE HOST, A MITE (LELAPS ECHIDNINUS). Hygienic Laboratory Bulletin 46. June, 1908. By W. W. Miller. Paper. Pp. 51, with illustrations. Washington: Government Printing Office, 1908.

THE RELATIONS OF MEDICAL EXAMINERS AND MEDICAL PRACTICE ACTS TO MEDICAL EDUCATION, MEDICAL COLLEGES, MEDICAL STUDENTS AND THE PROFESSION. By P. C. Remondino, M.D., Ex-Vice-President of the State Medical Society of California. Paper. Pp. 200. San Diego, Cal.: Frye & Smith, Publishers.

A SYSTEM OF SYPHILIS. In Six Volumes. Vol. II. Edited by D'Arcy Power, M.B., F.R.C.S. and J. Keogh Murphy, M.D., M.C., F.R.C.S., with an introduction by Jonathan Hutchinson, F.R.S. Cloth. Pp. 387, with illustrations. Price, \$13.50. New York: Oxford University Press, 1908.

VACCINATION. What It Is, What It Does, What Its Claims Are on the People. By F. C. Curtis, M.D., Consulting Dermatologist, New York State Department of Health. Paper. Pp. 39, with illustrations. Issued by the New York State Department of Health, 1908.

THE RECTUM, Its Diseases and Developmental Defects. By Charles B. Ball, M.Ch., F.R.C.S.I., Hon. F.R.C.S., Regius Professor of Surgery in University of Dublin. Cloth. Pp. 332, with illustrations. Price, \$10.50. New York: Oxford University Press.

ERGEBNISSE DER INNEREN MEDIZIN UND KINDERHEILKUNDE. Redigiert von Th. Brugsch, L. Langstein, Erich Meyer and A. Schittenhelm. Vol. II. Paper. Pp. 708, with illustrations. Price, 24 marks. Berlin: Verlag von Julius Springer, 1908.

VACCINE THERAPY AND THE OPSONIC METHOD OF TREATMENT. By R. W. Allen, M.D., B.S., Late Pathologist to Royal Eye Hospital. Second Edition. Cloth. Pp. 242, with illustrations. Price, \$2.00. Philadelphia: P. Blakiston's Son & Co., 1908.

LECTURES ON THE PATHOLOGY OF CANCER. By Charles Powell White, M.A., M.D., F.R.C.S., Pilkington Cancer Research Fellow. Cloth. Pp. 83, with illustrations. Price, 3 shillings 6 pence. Manchester: The University Press, 1908.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS, OFFICIAL TRANSACTIONS, 1907. In two volumes. Edited by John A. Fordyce, M.D., New York, Secretary-General. Cloth. New York: The Knickerbocker Press, 1908.

LE BACILLE DE KOCH EST UNE BACTÉRIE INNOCENTE. ET PAS L'AGENT PATHOGENE DE LA TUBERCULOSE. LE VIRUS TUBERCULEUX. Par H. W. Middendorp. Paper. Pp. 32. Paris: A. Maloine, Editeur, 1908.

A SYNOPSIS OF SURGERY. By Ernest W. Hey Groves, M.S., M.D., B.Sc., F.R.S.C., Assistant Surgeon to the Bristol General Hospital. Cloth. Pp. 486. Price, \$2.50. New York: William Wood & Co., 1908.

WELLCOME'S PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, 1909. Cloth, with pocket, flap and special memoranda. Price, \$0.50. New York: Burroughs, Wellcome & Co.

BUREAU OF VITAL STATISTICS OF STATE OF CONNECTICUT, SIXTIETH REPORT FOR THE YEAR 1907. Cloth. Pp. 293. Hartford: Published by the State, 1908.

TWENTY-SIXTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF INDIANA FOR THE YEAR 1907. Cloth. Pp. 508. Indianapolis: William B. Burford, 1907.

DISEASES OF THE HEART. By James Mackenzie, M.D., M.R.C.P. Cloth. Pp. 386, with illustrations. Price, \$9.00. New York: Oxford University Press.

THIRTY-NINTH ANNUAL MEETING OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Cloth, pp. 616. Boston: Wright & Potter Printing Co., 1908.

PARENTS AND CHILDREN. Thoughts on Occult Power of Conception and Environment. By E. B. Craddock, M.D., Concord, N. H. Paper. Pp. 40.

HOSPITAL OF THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA. Fourth Report for 1908. Pp. 68. Philadelphia, 1908.

THE BATTLE OF MICROBES. December, 1908. Paper. Pp. 28. The Merchants' Association of New York.

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Original Articles

BILIBID PRISON SANITATION *

EDWIN C. SHATTUCK, M.D.

MANILA, P. I.

The subject of prison sanitation is such a comprehensive one and presents so many points for consideration that I have thought best in the present paper to discuss briefly such subjects as have seemed most pertinent.

Unless there is complete isolation, a thing usually impossible, the population in the vicinity of a prison or other public institution is endangered by insanitary conditions or epidemics occurring in the institution. On the other hand, it is frequently the case that the only way by which infection can gain an entrance to the institution is from or through the neighboring population. It is clear then that it is to the interest of both to cooperate to prevent conditions inimical to public health. Since we know that sometimes in spite of every precaution epidemics do arise, the rational procedure is to join hands in the work of stamping them out.

The remarkable reduction in the mortality of Bilibid Prison during the calendar year 1907 led me to undertake the writing of this paper, with the idea of collecting such data as might suggest the probable reason for the improvement.

From the Spanish archives it is learned that the prison was originally constructed (1863-1866) of poor materials and by cheap labor under an unscrupulous contractor who for his dishonesty in this matter was the first criminal to be confined in the jail which he had built. As a result of this faulty construction the sanitary condition of the building was poor from the first and has continued to be so. It will thus be seen that Bilibid prison was never considered a model of sanitation. When I first saw the place in 1905, some of the building had been repaired; a new style shutter opening outward from below had replaced the old Spanish shutters. A cement or tile floor, one to one and a half feet above the level of the court had taken the place of the old wooden floors. Some filling in had been done, but overflowing from the estero¹ still occurred. Several buildings had been rebuilt and many shops and store-rooms added outside the wall and the administration building enlarged. Many improvements on general lines had been made. There are to-day fifteen buildings used as prisoners' quarters, one of which was finished during 1906-7.

Sanitation, however, advanced very slowly. The low position of the prison and the low-lying ground between it and the estero caused a regular overflow during rains.

During the first eight months of my service I could not cross the grounds to the hospital without danger of going over my shoes in the soft mud. The outlet of a large surface drain which formerly emptied into some marshy land back of the rear wall was moved so as to empty directly into the estero. New drains were laid and made deeper than the old ones. The ground was filled in so that the general level was raised from six to eighteen inches, or more. From its beginning, Bilibid was without a hospital worthy to be designated as such. The hospital (Figs. 1, 2 and 3), which I am told was built originally of scraps, is at present situated in the rear of the presidio grounds at their lowest level. Up to September 5, 1906, the hospital grounds, the adjoining enclosure and the floors of the presidio cells had not been filled in. On that date I made the following recommendations: 1. "That the ground in the enclosure and the floor of the bartolina² be raised eight inches and the canals be built to correspond." 2. "That ventilators be placed in the roof of cells 1 and 5." These cells had been found to have practically no movement of air. The repairs were made shortly afterwards. A window with a grating was also added to the prison bakery to provide absolutely needed ventilation.

In the latter part of 1904 the prison hospital was divided for the purpose of isolating the tuberculosis patients. A building was rented on Calle Marquis de Comillas near the Ayala bridge to be used as a hospital for tuberculosis and designated Hospital B. (Fig. 4.) Among other advantages it has a yard shaded with trees. During the last two years the tuberculosis hospital has had its own physician and personnel.

Figure 5 gives a view of the prison showing most of the buildings as they are to-day. The average length of each building is 165 feet and the width 20 feet. The height is 15 feet, with an eight-foot drop from roof. Each has approximately 62,700 cubic feet of air space and is occupied by 249 prisoners. This would be 251 cubic feet of air space for each man.

The cubic feet of air space for each individual in the prisoners' quarters has varied with the population in the last two years between 200 and 300. It is evident that the farther it goes below the latter figure the more prevalent tuberculosis and pneumonia are likely to be.

It is necessary, both from an administrative and a sanitary point of view, to furnish all able-bodied prisoners some occupation. Prisoners are provided with work in various shops and also on the roads. There is also a prison band. Practically all work on prison grounds and buildings, construction, etc., and much of the clerical work is done by prisoners.

The ration is closely approximated in the following table showing the items and quantities for five consecutive days beginning February 18, 1908.

* Read at the Fifth Annual Meeting of the Philippine Islands Medical Association, 1908.

1. A small creek into which the tide flows.

2. Cell-house.

Quantity per man.	Feb. 18.	Feb. 19.	Feb. 20.	Feb. 21.	Feb. 22.
Beef.	6	6	..	3	6
Pork.	..	..	6	..	..
Fish.	..	..	..	3	..
Camotes ³	3	2	..	..	1
Mongos ⁴	..	1	1	1½	1
Potatoes.	2	3	6	3	2
Squash.	1	..	..	..	1
Onions.	1	1	..	..	1
Tomatoes.	..	..	..	2	..
Bread.	12	12	12	12	12
Rice.	18	18	18	18	18

The drinking water, which is furnished by a distilling plant, is kept in barrels or cans having a locked

All latrines and garbage-cans, as well as the night tubs in the buildings are screened and made fly-proof. The night tubs are emptied daily; the garbage also is taken away every morning. Wooden cuspidors with covers are placed about the grounds and prisoners are required to use them. These cuspidors are cleaned daily and disinfected once a week.

The prison grounds are sprinkled daily, which keeps down the dust and helps to some extent in preventing diseases of the respiratory system. The buildings, formerly painted red, and later white, were finally painted

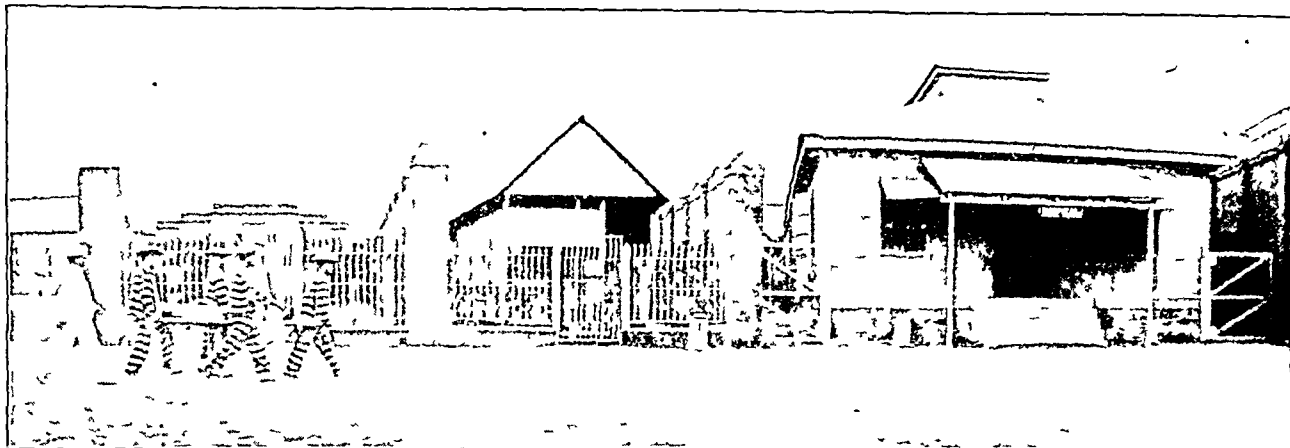


Fig. 1.—Entrance to the hospital at Bilibid prison, showing the litter bearers taking a patient to the hospital

cover and spigot, and prisoners are forbidden to drink tap water.

A daily sanitary inspection is made by the hospital steward, who reports anything calling for further investigation. Immediately on the appearance of a case of a disease that might become epidemic, such as cholera, plague or smallpox, the patient is isolated, the building quarantined and disinfected, and all the prisoners in it are bathed in a bichlorid of mercury solution.



Fig. 2.—Operating room of the hospital, Bilibid prison.

Their clothing also is soaked in the same kind of solution. Cholera patients are treated at Bilibid. Smallpox patients are transferred to the contagious ward at San Lazaro Hospital, and all prisoners in the building and all who have come in contact with the disease are vaccinated. After these measures have been taken there is no further quarantine.

3. Native sweet potatoes
4. Chinese peas.

a slate color which prevents to a great extent the reflection and glare of sunlight and lessens the tendency to diseases of the eye.

Before any patient is discharged from the hospital he is given a bath in mercuric chlorid solution and, unless for any reason he is liberated, microscopic examination



Fig. 3.—Convalescent ward at Bilibid prison. This is nothing more than an open-air shed with raised wooden floor.

for intestinal parasites and for tuberculosis must prove negative. His bunk and bedding are disinfected.

The hospital is cleaned daily and disinfected once a week. All cuspidors and similar utensils in the hospital, night tubs, latrines, drains, etc., are disinfected whenever found necessary.

The chart in Figure 6 shows the mortality per thousand in Bilibid during the calendar years 1902-1907 in-

clusive. In 1902 an epidemic of beriberi (Fig. 7) raged in the prison, reaching its highest point of 253.7 deaths per thousand, during the month of October. This epidemic has been reported by Dr. Louis H. Fales,⁵ who was attending physician to the hospital at that time. He attributes the epidemic to a deficiency of potash salts in the ration. There are still cases of acute and latent beriberi in the prison, although deaths from it are rare.

I have noticed that whenever the health conditions of Manila have made it necessary to prohibit the sale of certain vegetables (such as tomatoes, etc.) or whenever for any reason the vegetable component of the ration is

During the year 1904 the mortality appears to have gradually increased, not from any one cause but from all causes. Tuberculosis, pneumonia and amebic dysentery all combined to swell the death rate, and in December an outbreak occurred during which the Gatling gun claimed twenty-one victims among the prisoners who were attempting to escape. These cases, if deducted from the annual mortality as deaths due to violence would reduce slightly the annual mortality.

In 1905 there was a slightly lessened mortality from pneumonia, with about the same number of deaths from amebic dysentery, and almost double the number from tuberculosis. This had increased the mortality in July

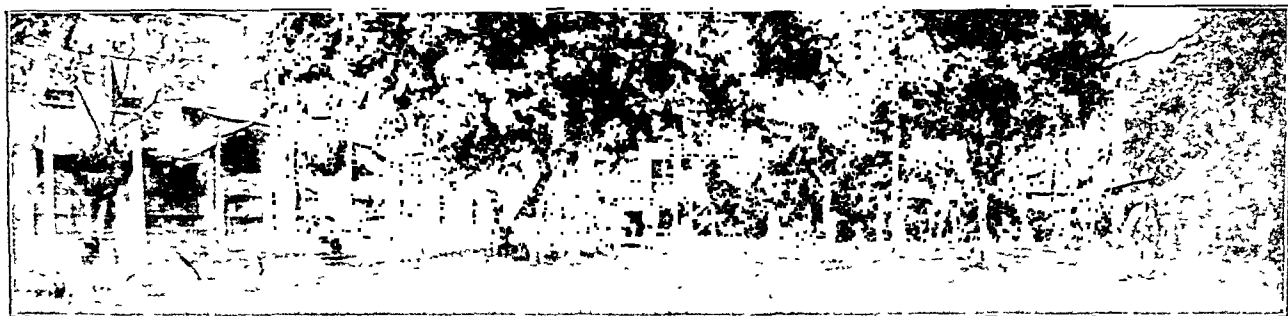


Fig. 4.—The tuberculosis hospital (Hospital B) at Bilibid prison, situated on the banks of the Pasig River near Ayala bridge.

temporarily reduced, not only do we have more cases of beriberi, but there is more sickness in general.

The annual mortality from the disease for the years 1902-1907 inclusive, is as follows: In 1902, 114 per thousand; 1903, 7.4 per thousand; 1904, 2.8 per thousand; 1905, 3.8 per thousand; 1906, 6.4 per thousand, while 1907 is conspicuous by the absence of deaths from this cause. The number of cases treated during 1906 were 121, while only 24 cases appear on the records of 1907. I attribute this decrease mainly to improvement in the ration, which now contains native vegetables and Chinese peas or mongos.

to 137.8 per thousand. In August, Asiatic cholera of a severe type appeared coincidentally with an outbreak of cholera in Manila, and caused 19 deaths, the mortality for the month being 191.5 per thousand. In September there were ten deaths from cholera and thirty-seven from tuberculosis, which with the deaths due to other causes, made seventy-three for the month; a mortality of 237.9 per thousand. At this juncture the Bureau of Health was placed in charge of the sanitation of the prison. The mortality steadily decreased during October, November and December. For the year, however, it was 115.6 per thousand.

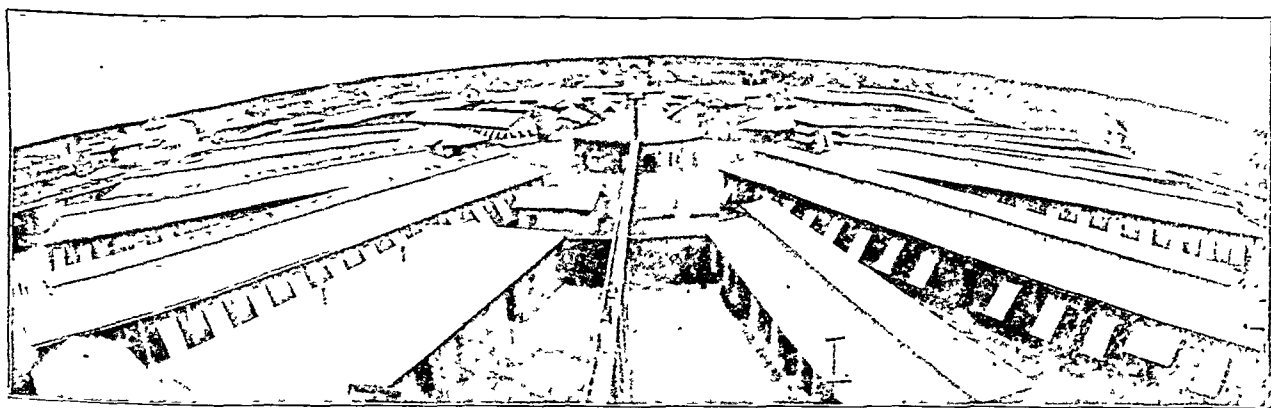


Fig. 5.—General panoramic view of Bilibid prison, showing most of the buildings as they are at the present time.

In reviewing the mortality of 1903, my own experience moves me to admiration of Dr. Fales' results after the epidemic of beriberi had been controlled. The unfavorable conditions at that time, the absence of a hospital kitchen, the low ground and poor drainage about the hospital, the exposure of patients during storms, and overcrowding, all tend to reflect credit on his work.

5. Beriberi, Its Etiology and Prevention, THE JOURNAL A. M. A., March 2, 1907, xlviii, 776

On January 1, 1906, my own work began. The mortality runs about as it did in 1903. Tuberculosis was distinctly lessened as a factor in mortality, while pneumonia and amebic dysentery were somewhat reduced. The mortality for the year was 68.10 per thousand. In 1907 a decided improvement occurred all along the line, there being only sixty deaths during the entire year, and forty of these were due to tuberculosis.

In the chart shown in Figure 7 I have endeavored to show the part which is played by tuberculosis, pneu-

monia and dysentery in the prison mortality rate. Among these three, tuberculosis is easily the leader. In 1902 it caused 7.2 mortality per thousand; in 1903, 13.1; in 1904, 25.5; in 1905, 52.8; in 1906, 19.5 and in 1907, 11.5. Its rise was coincident with the increase of the prison population and consequent overcrowding. Although there are fewer deaths at present, I am of the opinion that the disease is not decreasing. With increased care in the isolation and treatment of cases, there is a small percentage of cures and in other cases life is prolonged.

Pneumonia is a disease which, as the matter now

appears to me, would hardly be looked for in the Philippines. Outside of Bilibid, I have seen but two cases among adults in eight years' practice. In the prison it is as much to be reckoned with as tuberculosis and in many cases it seems to be of a septic type. Its mortality range for the consecutive years 1902-1907 inclusive, has been, respectively, 9.9, 13.8, 21.2, 13.1, 10.4 and 1.7 per thousand.

Amebic dysentery ranks next in importance as a cause of death. Its influence shows as follows in the years under consideration (1902-1907): 1.6, 5.7, 10.9, 12.2, 5.6 and 0.9.

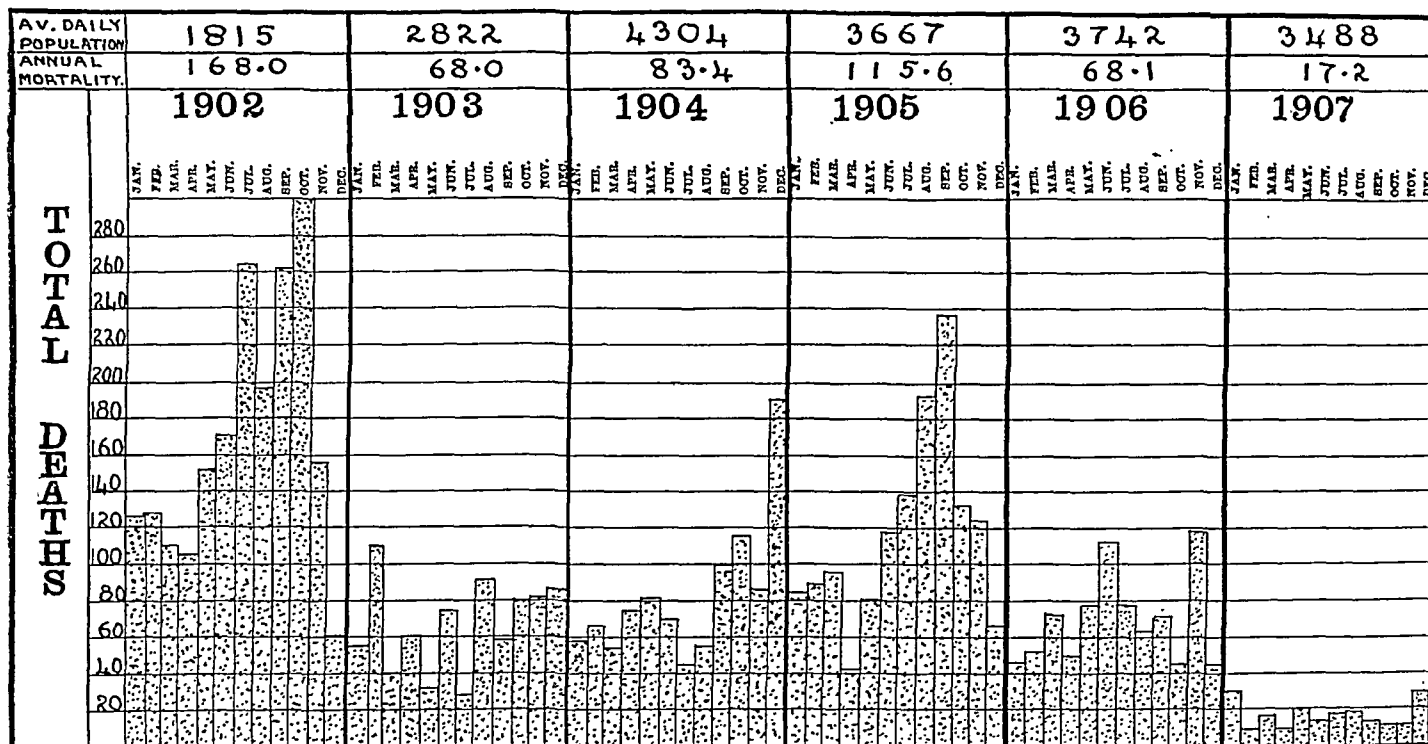


Fig. 6.—Chart showing mortality per thousand in Bilibid prison during the years 1902-1907, inclusive.

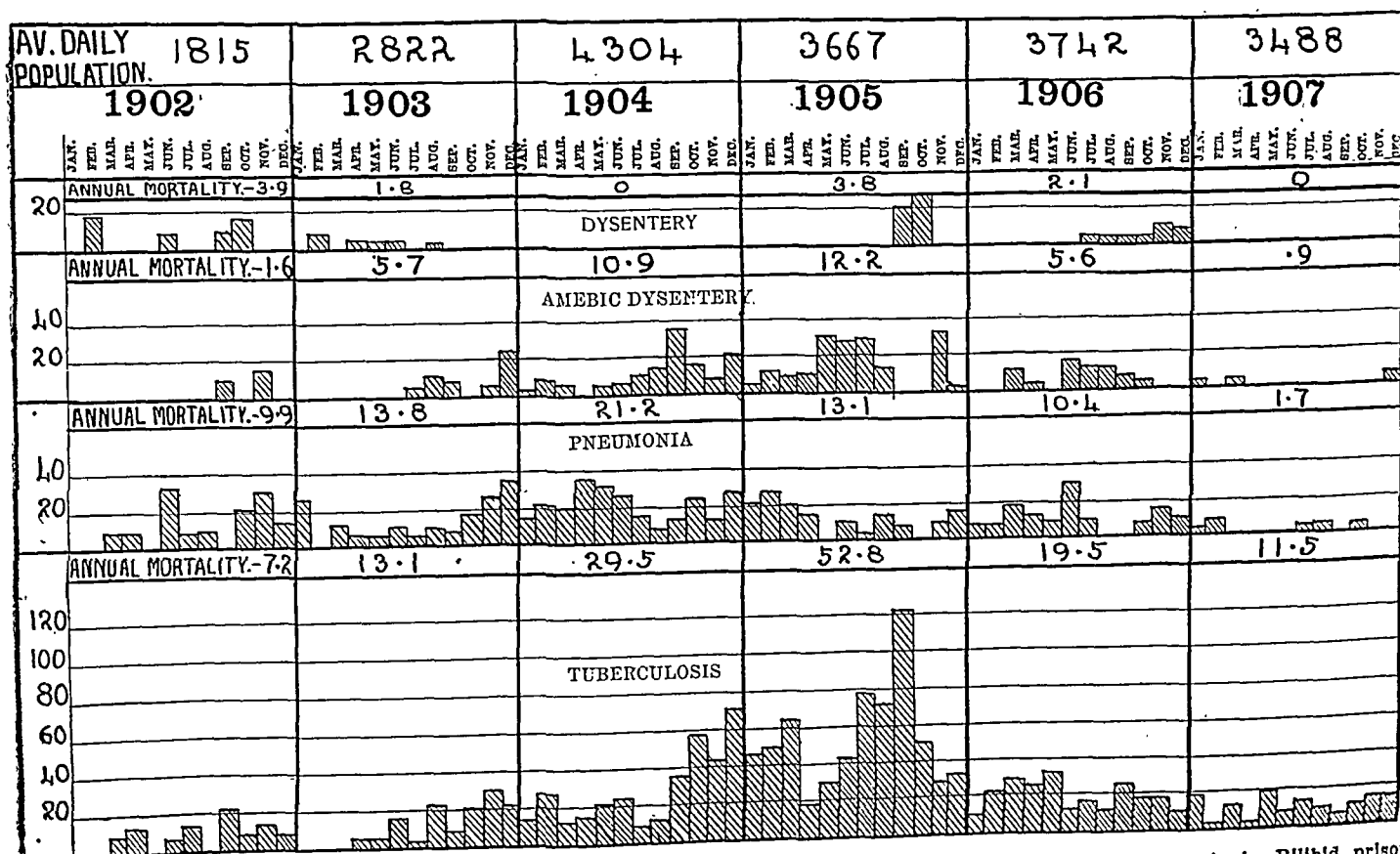


Fig. 7.—Chart showing mortality per thousand from dysentery, amebic dysentery, pneumonia and tuberculosis in Bilibid prison during the years 1902-1907, inclusive.

These figures and the nature of the disease seem to suggest that the mortality may be largely preventable. I shall refer to this further on in the course of this article.

Acute dysentery has appeared from time to time but never in epidemic form. I know of no bacteriologic work done in these cases and can not say to what organism they are due. It will be noticed that in 1904 and

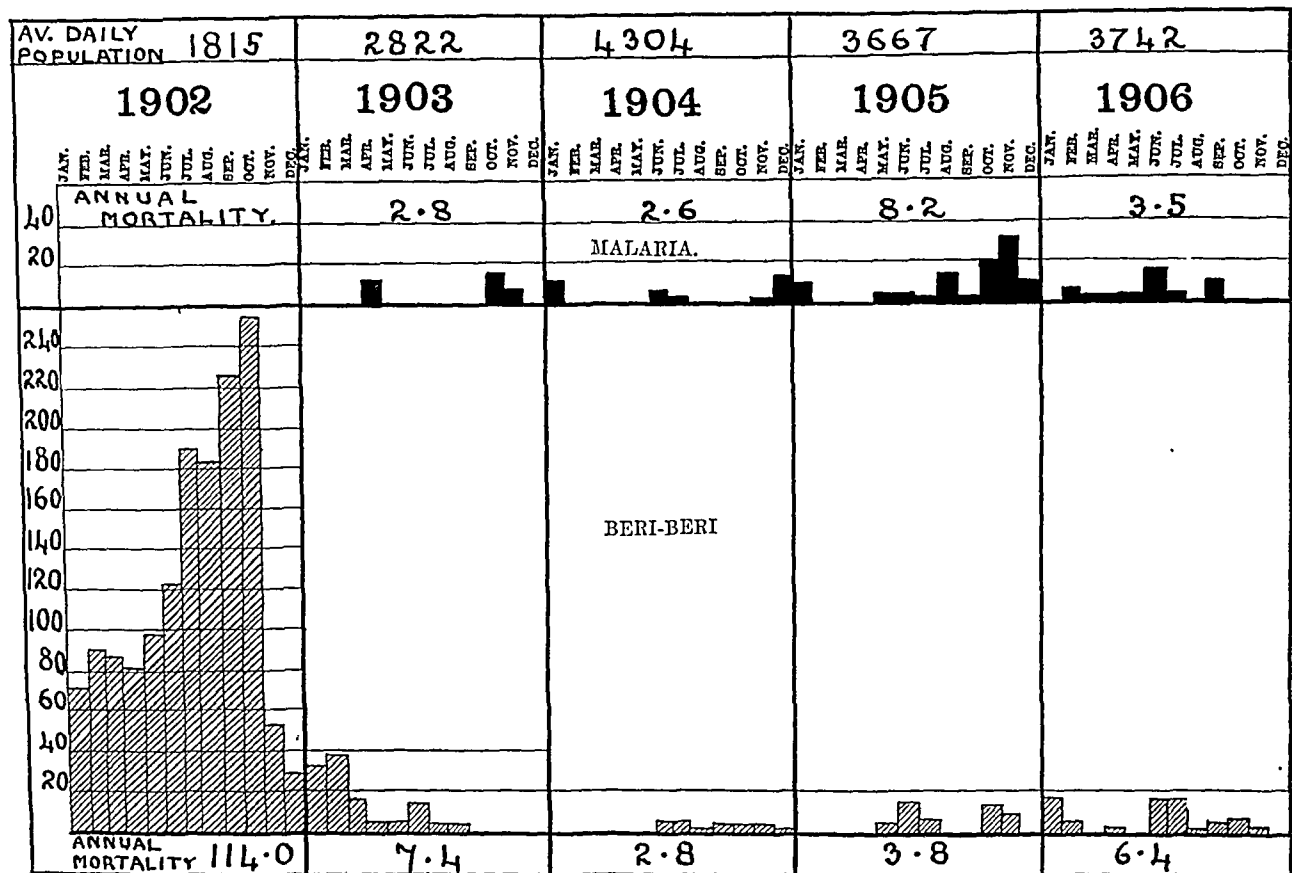


Fig. 8.—Chart showing mortality per thousand from malaria and beriberi in Bilibid prison during the years 1902-1906, inclusive. There were no cases of either of these diseases during 1907.

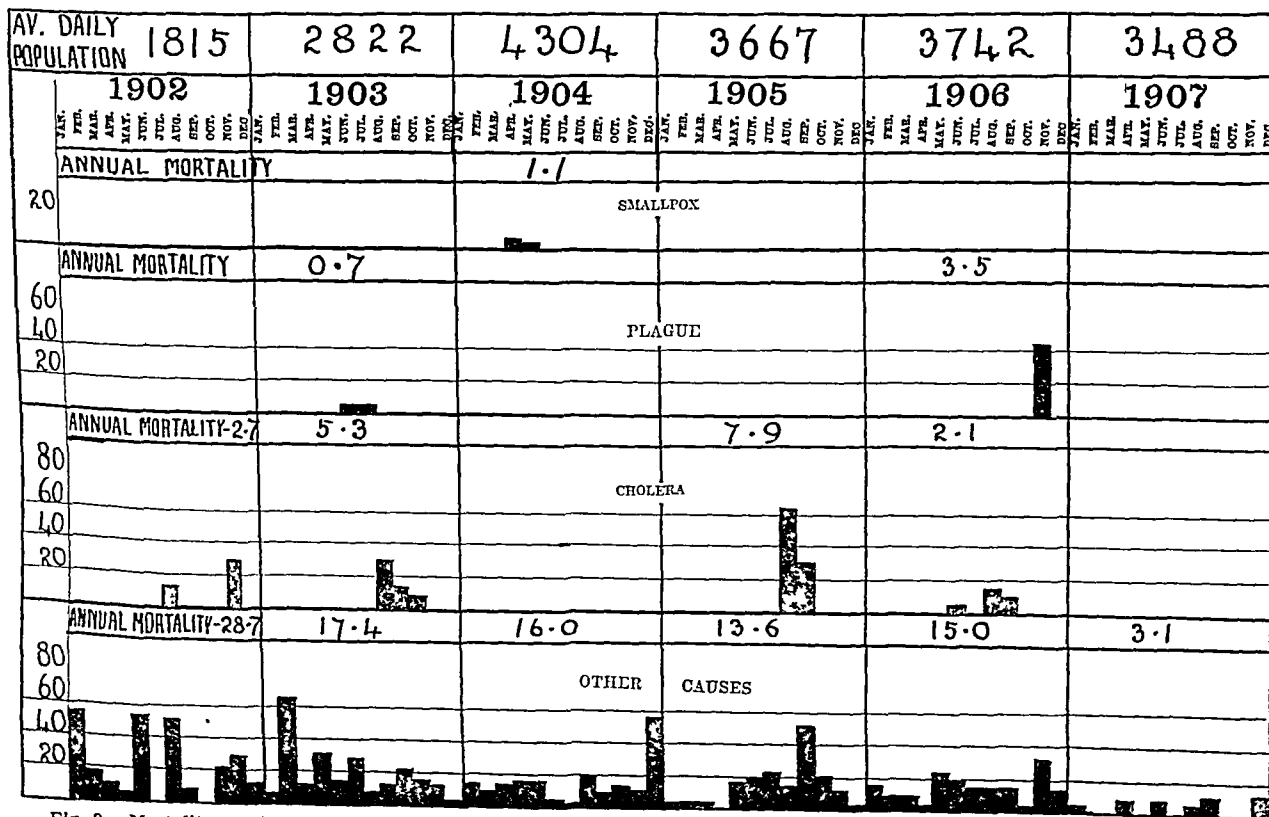


Fig. 9.—Mortality per thousand from smallpox, plague, cholera and other causes in Bilibid prison during 1902-1907, inclusive.

in 1907 the disease claimed no victims. In 1902 the mortality was 3.9; in 1903, 1.8; in 1905, 3.8 and in 1906, 2.1 per thousand.

The next disease that causes a marked mortality is malaria. (Fig. 8.) In 1902 there were no deaths; in 1903 the mortality was 2.8 per thousand; in 1904, 2.6, in 1905, 8.2, and in 1906, 3.5. In 1907 there were no deaths from malaria.

The chart in Figure 9 shows that only in one year of those under consideration, namely 1904, were there any deaths from smallpox in Bilibid. These were in April and May, two deaths occurring in each month. During my service it has been the practice to transfer all cases of smallpox to the San Lazaro contagious wards. Among those so transferred I know of no deaths having occurred. In 1903 there were two deaths from plague, one in June and one in July. In November, 1906, there were thirteen deaths from plague. These deaths, with one exception, occurred among 24 cases accidentally inoculated by an investigator from the Bureau of Science, as reported by Freer.⁶ How the other case originated is not positively known, but the patient was in a bed adjoining one of the other patients before the disease was recognized and the cases isolated. It is probable he received the infection from one of them. He had no marks of a primary local infection. It is considered noteworthy that under the circumstances no epidemic occurred nor any infection other than as above stated. It seems to prove that plague is not actively contagious as was formerly supposed.

In 1902 there were five deaths from cholera, one in July and four in November. In 1903, cholera reappeared, in August there were eight deaths, in September four deaths and in October three deaths. The annual mortality was 5.3 per thousand. In 1904 there was no cholera. In 1905 cholera appeared and in August caused 19 deaths, and in September 10 deaths. The annual mortality from the above was 7.9 per thousand. In 1906 cholera appeared in June, causing one death. In August there were five deaths and in September two, the annual mortality being 2.1 per thousand. In 1907 there was no cholera in Bilibid.

Deaths from various causes unclassified caused a mortality of 28.7 per thousand in 1902; 17.4 in 1903; 16.0 in 1904; 13.6 in 1905; 15.0 in 1906 and 3.1 in 1907. A point to which I wish to call attention is that in 1907 there were no deaths from beriberi, malaria, acute dysentery, cholera, plague or smallpox. There were six deaths from pneumonia, three from amebic dysentery, forty from tuberculosis and eleven from miscellaneous causes. The total mortality for 1907 may be summed up as follows: Tuberculosis, 11.5 per thousand; pneumonia, 1.7 per thousand; amebic dysentery, .9 per thousand; miscellaneous, 3.1 per thousand. Total, 17.2. Executions are omitted from this mortality.

RECAPITULATION

Year.	Average daily population.	Mortality per thousand.
1902.	1,815	168.0
1903.	2,822	68.0
1904.	4,304	83.4
1905.	3,667	115.6
1906.	3,742	68.1
1907.	3,488	17.2

The mortality for the city of Manila during the calendar year 1906 was 41.07 per thousand; during 1907 it was 32.59 per thousand.

In prison sanitation, the first requisite is a hospital of some kind and provision for the isolation and care of the sick. Rest in bed, a bath, easily digested food—these alone do much. I believe that quinin, properly used, will almost eliminate malaria as a mortality factor. It certainly should be promptly used in malarial cases. A case of pneumonia is not so simple a problem. I have read about specifics but have not found one. We have used symptomatic treatment, quinin in tonic doses, tincture of veratrum viride or dry cups to relieve congestion, and cold baths for high fever.

I was much dissatisfied with the results of the quinin enema treatment in amebic dysentery. I saw on the morgue table, on different occasions, at least two cases of perforation of the colon which might have followed the careless use of the rectal tube. Most of the hospital attendants being native prisoners, a high degree of skill can hardly be expected of them. I decided finally to abandon the quinin enemas and to try internal treatment, alone. I prescribed as follows:

R.	gm. or c.c.	
Simaruba pulvis	3	gr. xlviii
Benzonaphthol	3	gr. xlviii
Bismuth subnitratiss	8	or ʒii
Pocion gomosa ⁷	200	ʒviss
Syrupus kramerie	30	ʒi

M. et Sig.: A tablespoonful every three hours, and 100 c.c. of a 50 per cent. sodium sulphate solution every second or third day.

This, apparently, has reduced the mortality from amebic dysentery to the vanishing point. The three deaths from this disease which occurred during 1907 were treated by other methods than that described. In very acute cases I have given warm saline enemas every two hours until the symptoms are relieved. Enemas of tannic acid are also advisable if hemorrhage is marked.

An observation developed the fact that a large number of the stools of the prisoners contained ova of intestinal parasites, a systematic investigation was undertaken. Over 17,000 examinations were made.

We had no room for these patients in the hospital, but, after consulting with the Director of Prisons, it was found practicable to build a small ward next to the main hospital, which would accommodate 60 to 80 patients by having them sleep on the raised wooden floor. This was used for the treatment of ankylostomiasis. All patients found infected have been treated in this ward until found negative once or twice on microscopic examination. It has come to be popularly known among the prisoners as the "hungry ward," because on the alternate days on which treatment is given, they get no food. Ascaris cases were treated in the convalescent ward, while amebic dysentery and other intestinal diseases were treated in the main ward.

The eradication of intestinal parasites, so far as possible, I believe to be of primary importance. Their toxins slowly poison the system; the local lesions made by them afford means of entrance for pathogenic bacteria. I attribute the improved health of the prison largely to the results of this systematic work. Other factors were operative at the same time. Formerly many of the prisoners feared the hospital, thinking if sent there they were sure to die. This I believe has entirely changed. There are of course malingerers who must be excluded when detected. The following table shows the cases of intestinal parasites treated during 1906 and 1907:

6. Accidental Inoculation with the Virus of Plague, THE JOURNAL A. M. A., April 13, 1907, lxviii, 1264.

7. Pocion gomosa is a mixture of acacia pulvis, 2 grams; syr. simp., 100 grams; spt. aurantii flor., drops 10.

Disease.	1906			1907		
	No. of cases.	No. of deaths.	Case mortality.	No. of cases.	No. of deaths.	Case mortality.
Ankylostomiasis	360	..	..	2,573	..	..
Amebic dysentery	215	21	.10	810	3	.04
Tenia saginata, solium, etc.	..	..	..	32	..	..
Hymenolepis nana.	..	..	..	3	..	..
Hymenolepis diminuta.	..	..	..	1	..	..
Ascaris.	264	..	..	893	..	..
Balantidium coli.	..	..	..	30	..	..
Opisthorchis sinensis.	1	..	..	11	..	..
Oxyuris vermicularis.	..	..	..	42	..	..
Schistosoma japonicum.	..	..	..	20	..	..
Paragonimus Westernmani 4	1	25	..	18	..	..

Among the most important needs of the prison to-day may be mentioned: More cubic air space to each man in the quarters, a hospital, a modern sewerage system, and a sanitary system of bunks. All these have been appropriated for.

There are three possible explanations of the reduction in the mortality during 1907: first, a favorable season and improved sanitation; second, prompt diagnosis and treatment of diseases in general, but especially of intestinal parasites; third, exceptionally fortunate results in general treatment; fourth, a happy combination of the first three.

I am persuaded that those who know the actual conditions under which the work has been done will wonder that so much has been accomplished, my attempt to explain it notwithstanding.

A CASE OF ACUTE HUMAN GLANDERS *

F. ROBERT ZEIT, M.D.

CHICAGO

This case of acute glanders in man illustrates that it is comparatively easy to distinguish the disease from symptomatically similar conditions. Before the pustular eruption appears the case is generally suspected to be typhoid fever, septicemia, croupous pneumonia or articular rheumatism. When the pustular eruption appears smallpox or a pustular syphilid is most commonly suspected.

The small number of cases reported in the literature of acute glanders in man has given rise to the opinion that the disease is rare and human susceptibility to infection small; but it is quite probable that fatal cases of glanders are reported under other causes of death, notably smallpox.

Among laboratory workers numerous deaths from infection by the *Bacillus mallei* have been reported because the nature of the infection was properly determined. It is to be presumed that the infectious material, fresh from the nose or farcy bud of a horse, is no less virulent than the various subcultures and strains used in the laboratory experiments.

The case which I report occurred in the practice of Dr. Bayard Holmes, Jr., to whom I am indebted for the history, having been called to examine the case when the suspicion of smallpox arose.

Patient.—Male, aged 45, robust build, 6 feet 2 inches tall, weighing 185 pounds, a teamster in a large department store stable.

Illness.—This began with a thin watery discharge from the nose, pains in the left shoulder and a severe chill of one-half

hour's duration, followed by extreme weakness in his lower extremities. The patient remained at home during the following week, complaining of sharp shooting pains in his left shoulder, increasing weakness and dull headache with a slightly blood-tinged purulent nasal discharge. He had some fever at night and always felt better in the morning. During the next week he developed typhoid symptoms, became delirious at night, had high fever, much headache, diarrhea and pain in the left shoulder. He had some swelling and pain in left leg, some rigidity of the muscles of the neck, increased excitability of the reflexes and normal morning temperatures. A few vesicles, containing clear serum, appeared on his left shoulder.

First Examination.—Dr. Holmes was called to see the patient on the twenty-sixth day after his initial chill and found him lying in bed, with his head slightly drawn back, the eyes staring at the ceiling, the mouth open, the limbs moving in a muttering delirium, tongue dry and red at the tip and heavily coated at the base, the nose obstructed. The left shoulder was covered by a large number of pustules, and Dr. Holmes also noticed a few pustules on the scalp and right wrist of the patient at that time. The heart was fluttering, markedly intermittent, missing as many as ten beats at times. There were no murmurs. The lungs and spleen were negative; the



Fig. 1.—Pustular eruption of acute glanders as exhibited on the day of the patient's death, twenty-eight days after initial chill.

abdomen tympanitic. There was a very painful, small, hard and uneven nodule, about the size of a 50-cent piece, over the tibia, just below the left knee, which could not be palpated without rousing the patient from his delirium, to beg for relief from the pain. The evening temperature per rectum was 104.5, pulse 120, respirations 24. Excrements and urine were voided involuntarily. Typhoid fever was suspected.

Clinical Course.—A cold sponge reduced the temperature to 101 and the patient slept quietly until 6 o'clock the next morning. At 11 o'clock the face was flushed, the nose completely obstructed and discharging thin bloody pus. The pustular eruption had extended over the left side of the chest to the umbilicus and upward onto the face and into the hair and from the right wrist upward to the elbow. A few scattered pustules appeared over the lower extremities. Temperature was 102, pulse 110, respirations 30. The scrotum was swollen and an ulcer had formed during the night on the glans penis near the meatus urethrae. The urine contained some albumin and gave no Diazo reaction. A Widal test proved negative. The patient was taken to Wesley Hospital at noon. During the afternoon and evening of this (the twenty-seventh) day the pustular eruption gradually spread over the whole body, appearing last on the back. The scrotum became more

* From the Department of Pathology, Northwestern University Medical School.

and more edematous and the glans penis gangrenous. Temperature varied between 103 and 106 per rectum and the patient was delirious. The next morning the patient was seen by several physicians, the case being now suspected of being smallpox.

Second Examination.—I saw the patient at this time. He was in a semicomatose condition. The face and neck were of a dusky red color and swollen, the glands of the neck enlarged. A thin serosanguinolent fluid escaped from both nostrils. The patient's left shoulder was erysipelatous and covered with a bullous eruption. The scrotum was markedly edematous and the glans penis gangrenous. The whole body and especially the extremities were covered by discrete pustules, somewhat resembling smallpox pustules. The oldest pustules were the size of a large pea. A few of these were umbilicated. Most of the pustules were distended, pointing and glistening, of a grayish yellow color and surrounded by a narrow hyperemic zone. They contained a viscous fluid with many polymorphonuclear leucocytes and glanders bacilli. Small red macules and papules were distributed in moderate number between the numerous, distended, pea-sized pustules. Cover-glass smears taken from opened pustules of the head, body and extremities all showed numerous bacilli, as many as thirty in some of the fields, having the characteristic morphology of the *Bacillus mallei*.

A positive diagnosis of acute glanders was made.

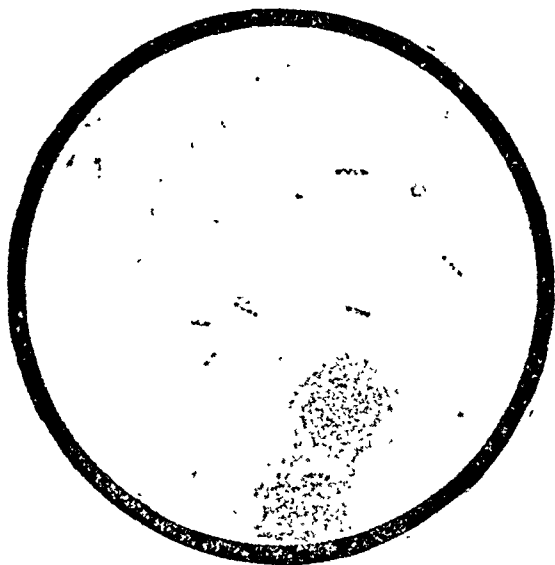


Fig. 2.—Cover-glass smear from opened pustule, showing glanders bacilli.

The patient died the same evening, twenty-eight days after the first distinct chill, with a temperature of 107. A request for autopsy was denied by the relatives.

Bacteriologic Examination.—The bacilli were non-motile, showed a slight tendency to parallel arrangement and were found in small groups with two or three end to end. Their length varied between 2 and 5 microns, thickness 0.3 to 0.5 microns. The ends were rounded, sometimes club-shaped, and cover-glass smears of the pus stained for three minutes with heated Loeffler blue showed deeply-staining areas and chromatic globules within the pale-blue ground substance of the bacilli. The irregularity with which the bacilli take the stain is quite similar in some of the specimens to that of diphtheria bacilli, many of the deeply-staining chromatic globules being round or ovoid; but, on the whole, the chromatic globules are not as distinct and numerous as in diphtheria bacilli, but appear frequently only as irregular granules alternating with light or poorly staining areas of the bacillary bodies. The bacilli were Gram negative. Characteristic cultures were obtained on the different culture media. Potato cultures, direct from the pustules, showed rich, glossy, elevated yellowish and semitransparent colonies with sharp borders on the second day, which became like amber or honey on the third and fourth days and opaque and reddish on the seventh and eighth days. Subcutaneous and intraperitoneal inoculation proved fatal to guinea-pigs, but the male guinea-pigs inoculated intra-

peritoneally did not develop the inflammation of the tunica vaginalis, testicle and epididymis described by Strauss.†

It may be of interest to note that unless one is careful in the examination of the stained smears of pus or cultures the deeper staining globules of the glanders bacilli may easily give rise to the opinion that groups of staphylococci are seen. Particularly is this the case if the bacilli are in dense clumps, as is not unusual in the thick smears from cultures. In gross appearance fresh agar cultures of the pus may also simulate the *Staphylococcus aureus* somewhat by producing rich, shiny, yellowish colonies, so that it is not uncommon, unless one is experienced, that a bacteriologic diagnosis of *Staphylococcus aureus* is made from thick smears.

This also explains the frequency of *Staphylococcus aureus* contaminations reported in the literature in cases of glanders in which bacteriologic examinations of the pus were made.

If very thin smears are obtained of these cultures the cocci are seen to be deeply staining portions or chromatic globules within the faintly staining ground substance of the bacillary bodies. In thick smears, with clumps of glanders bacilli, these globules appear like cocci and the faintly staining bacillary bodies or ground substance as a delicate spider-like network.

It is just this morphologic and tinctorial characteristic of the thin smear preparation, and the absence of all other bacteria, which makes a direct bacteriologic diagnosis from the smear of pus of a glanders pustule so easy. In a case like the one reported the necessity for an immediate and positive diagnosis between smallpox, pustular syphilid and glanders is apparent.

4016 Vincennes Avenue.

THE PREVENTION OF CANCER CELL IMPLANTATION

A PRELIMINARY REPORT*

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The finding of carcinomatous nodules in the region of the scar after the operation for removal of a carcinomatous growth has, until recently, been considered *prima facie* evidence of the surgeon's failure to excise all of the malignant growth. The investigations of Handley, Halsted, Warren, Ryall and others have succeeded in elucidating the subject and in emphasizing the importance of cancer cell implantation. We now appreciate the fact that cancer cells may, and in fact frequently do, escape from the carcinomatous tissues during operation and develop in any part of the operative field into fresh cancerous growths.

In cancer surgery there are four varieties of operation infection: (1) suture-scar infection, (2) nodular infection of wound, (3) diffuse or brawny infection, and (4) distant implantation. The first two forms are, according to Ryall,¹ of quite frequent occurrence, while the diffuse or brawny variety is the most startling and most distressing: it signifies widespread dissemination of cancer cells at the time of operation. Distant implantation is that form of operation infection in which

† Arch. de med. exper., 1889, i, 460.

*From the St. Louis Skin and Cancer Hospital.
1. Lancet, Oct. 3, 1908.

the cancer cells are carried to and implanted in a part cut into at the time of operation, but more or less distant from the primary growth. Infection of the abdominal incision following celiotomy for removal of a carcinomatous uterus represents the latter form of implantation.

LIBERATION OF CANCER CELLS

Cancer cells are liberated from carcinomatous tissues in many ways, e. g.: rough handling of the growth, piecemeal excision of carcinomatous tissues, deliberately cutting into the growth, tearing or cutting infected lymphatic glands and channels, rupturing diseased lymphatic glands, etc. The conveyance of cancer cells from the primary growth to distant parts by instruments, assistant's gloves, etc., does not seem to be duly appreciated by some operators.

It is clear that in many cases poor surgical technic is responsible for cancer cell liberation. It is also true that the surgeon can not always be sure that cancer cells

cells which may have been liberated and found their way into the operative wound in spite of all precautions.

It is reasonable to suppose that Keating Hart's method of exposing inoperable cancer cases to "fulguration," exposure for from five, ten to forty minutes to the strongest possible "lightning spark pencil" at a distance of two to four centimeters, and with frequent changing of the area exposed, previous to and immediately after excision of the growth, aimed at destruction of part of the remaining carcinomatous tissue and the liberated cancer cells. It is also probable that Crile's method of exposing the operative field in his breast cases to daily exposure to the Roentgen rays for two weeks before any attempt is made to graft or suture the parts, is for the purpose of attempting to destroy liberated cancer cells and possibly overlooked carcinomatous tissues.

Appreciating the dangers of cancer cell implantation, it occurred to me that the operative field could be swabbed with some antiseptic solution sufficiently strong to destroy the liberated cells without at the same time



Fig 1—Patient described in Case 1, ten days after operation. Destructive growth of left cheek involving the orbital tissues and cervical glands



Fig 2—Patient described in Case 2, five days after operation. Epithelioma of lower lip, epitheliomatous mass over right malar prominence

have not been liberated and found their way into the field of operation. The common expression that "the secret of success in the treatment of cancer is early, complete excision of the diseased tissues" needs, I think, modifying so as to read, "The secret of success in cancer surgery is early, complete excision of the carcinomatous tissues and the prevention of cancer cell implantation."

OPERATIVE TECHNIC

Successful cancer surgery signifies the strictest asepsis, the most gentle handling of the growth, the avoidance of cutting and tearing into the carcinomatous growth and diseased tissues, the excision of all diseased lymphatic glands and channels, wide excision of the carcinomatous tissues, and the destruction of cancer

interfering with primary union and without inducing toxic symptoms. The possibility of accidentally cutting into infected lymphatic channels and glands, or otherwise liberating cancer cells, in spite of the utmost care, is known to every surgeon of wide experience. My very favorable experience of four years with the alcohol-bichlorid-hydrochloric acid solution, recommended by Harrington in general surgery, led me to apply it to the operative field after excision of carcinomatous growths.

During the past three months I have been using Harrington's solution—applying it to the diseased tissues during removal, and directly to the operative wound after the diseased tissues had been excised—in all of my surgical cases at the St. Louis Skin and Cancer Hospital. The results have been all that could be

desired. The solution undoubtedly destroys the superficial parts of the operative field, closes the cut ends of the capillaries and lymphatic channels and apparently eliminates the danger of cancer cell implantation. In a recent case of sarcoma of the parotid the solution was applied directly to the carotid arteries and internal jugular vein; the duration of contact was too long; the vein became a brownish color and I feared that the destructive action would prove of detriment, but no untoward symptoms followed. We have used Harrington's solution in the surgical clinic at the Washington University with gratifying results. A few days ago a young man who had been struck on the lower lip with a pair of brass knuckles presented himself for treatment. Examination showed a gangrenous condition of a V-shaped portion of the lower lip. The gangrenous tissue was excised, the wound margins thoroughly cleansed with Harrington's solution and the parts sutured. Primary union followed. Sutures removed on fourth day.

REPORT OF CASES

CASE 1.—History.—Mr. J. K., aged 57, was readmitted in September, 1908. When a child he sustained a severe burn on left cheek. In January, 1908, he was struck in this region and shortly thereafter a small ulcer appeared and grew gradually larger. In May, 1908, it was as large as a silver dollar. On entrance, Dr. Drake found that the malignant mass was situated in the scar of the burn; the eye was intact. Healing did not follow excision of the growth. During the past two months the parts had become very painful and the growth markedly larger. Patient returned for excision of growth.

Examination.—This showed large, destructive growth on left cheek involving the orbital tissues and the cervical glands. General appearance of patient was very poor. Left side of face was paralyzed.

Operation.—Under ether anesthesia (preceded by morphin and atropin), a large flap was dissected from the neck, the left anterior triangle of the neck was cleared of glands and fat, Harrington's solution was applied both to the flap and to the operation wound, the latter was then sutured and the flap wrapped in gauze, and then covered with a towel, in the hands of one of the assistants. The orbital cavity was then cleaned out and the parts touched with Harrington's solution, after which the cavity was packed with gauze. After free excision of the growth on cheek and sponging the parts with Harrington's solution, the flap was sutured in position (Fig. 1). The orbital cavity was left open for x-ray purposes. The sutures in flap were removed on the fifth day, and the neck sutures on the seventh. Roentgen ray exposures were given every third day.

CASE 2.—History.—Mr. J. S., aged 56, admitted September 14, 1908. Four years ago he noticed a small growth on right cheek near malar eminence. Became larger and painful. Two years ago he had the growth removed, but the wound did not completely heal. During the past year the growth had been increasing in size and had become quite painful. Four months ago patient noticed small ulcer in middle of lower lip; this had been getting larger and would not heal.

Examination.—This was shown to be an epithelioma of lower lip; no palpable submental glandular involvement. Over the right malar eminence was an epitheliomatous mass as large as a silver dollar; the growth was very firm and ulcerated. The orbital cavity seemed free. The glands of neck were somewhat enlarged. The growth was movable.

Treatment.—Under ether anesthesia (preceded by morphin and atropin) a flap was dissected up from neck, the glands together with the periglandular fat, were excised and the operation wound sponged with Harrington's solution, after which the flap was likewise treated and wrapped in gauze, and the wound closed. The carcinomatous mass was then freely excised and the parts sponged with Harrington's solution, followed with saline solution. The flap was sutured in place and temporary dressings applied. After securing fresh instruments

and gloves, the submental glands and periglandular fat were removed and the operation wound sponged with Harrington's solution, and then sutured. The lip growth was then excised, the parts touched with the solution, and then sutured. Primary union followed. The illustration (Fig. 2) shows the wound five days after operation. The deep sutures were removed from cheek and neck on the eighth day.

REMARKS

I do not offer Harrington's solution as a substitute for proper surgical technic in cancer surgery, but as a valuable and efficient aid to the best possible surgical technic for the prevention of cancer cell implantation. Experiments are now in progress to determine the exact depth to which the destructive process extends when the solution is applied to a section of carcinomatous tissue for one, one and one-half, two and three minutes respectively. These results will be reported later. When the solution is applied to healthy tissue the destructive action is plainly seen.

At the present time I apply Harrington's solution to every part of the cut surface of the carcinomatous mass that is being removed; the growth is excised as rapidly and as carefully as possible, after the infected lymphatics and their periglandular tissue have been excised. After stoppage of hemorrhage in the wound the solution is applied to the entire field for one-half to one minute, depending on the character of the surface. In delicate flap operations the solution is very carefully applied. It is essential that all parts of the wound be touched with the solution. Where extensive dissections have been it is advisable to use a rubber-tissue drain. In intra-abdominal carcinoma the solution is applied to the abdominal wound after closure of peritoneum. When the extra-abdominal tumor is ulcerated Harrington's solution is applied for two minutes to the ulcerated portion.

4826 Delmar Boulevard.

SOME PRINCIPLES OF CEREBRAL SURGERY *

HARVEY CUSHING, M.D.

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BALTIMORE

In the presence of an extrauterine pregnancy, of an inflamed appendix, of gallstones, of pyloric stenosis, or what you will, of the many intra-abdominal lesions so frequently encountered, how many surgeons feel less competent to recognize the condition than their colleagues who are disinclined themselves to handle scalpel and forceps? And further, would these very colleagues be willing for a moment to call the surgeon in consultation on these cases if they did not feel assured that he is as familiar as they themselves with the anatomy and physiology of the organ concerned and the morbid processes, with their complications, to which it is liable?

One of the trying responsibilities of many physicians arises from the consciousness that they must protect their patients from the over-zealous interest of the chance operator, whose manual facility exceeds his knowledge of disease, an attitude almost as deplorable as that in which the trained surgeon may find himself with his opportunity to relieve slipping by, owing to

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

the procrastination of the attendant who favors surgery not at all, or as the last resort only.

Yet neither party would be willing to recall the day, not far remote indeed, when the physician selected the instruments for and directed the course of an operation so simple as a herniotomy, the "Bruchschneider" having been merely the more skilful hands for the better informed mind and superior judgment of the physician. Under this relation the advance of surgical therapy was necessarily slow, if not indeed often backward, and strides were not made in this manipulative division of therapeutics until the Hunters and the Hallers, the Bells and the Brodies, the Langenbecks and the Listers began to place a knowledge of the condition of disease as the chief asset of the surgeon—not his mere familiarity with probe and bistoury.

And yet this is the condition of things which pertains to-day in neurology; and it is putting the cart first for us surgeons to talk wisely about the technic of neurologic surgery if we know so little about the maladies toward which these measures are to be directed. Operations become dangerously safe under such circumstances, and if we do not invade this uncertain



Fig. 1.—Photograph taken during the course of a craniotomy, just before elevation of an osteoplastic flap, to show well protected field and hood for anesthetist.

field most cautiously we may be open to the same criticism not unjustly cast on the activity of certain laparotomists, likened to the inquisitive child who cuts a hole in a drum-head to see where the noise comes from.

As surgeons approaching neurologic maladies, what most of us need, therefore—a "finger and thumb" knowledge of neurology—can only be obtained with labor, patience and tears, for even the best of our schools do not as yet particularize on the relation of surgical measures to diseases of the nervous system, as they have come to do in the case of the eye and ear, of the pelvic and genitourinary organs, of the alimentary canal, the bones and joints, and what not, though it is a still more specialized form of work. Thus it is, I think, that those who look forward to a career in neurology should be instructed in matters of surgical technic—in other words, that a school of neurologists must grow up in the next generation with a general surgical training which will enable them to do their own operations. Now they can only stand by and wring their hands at the incompetency

of much of the work that is being done for them by others.

After this preamble, which is indeed the most important of the things I shall have to say, I may pass to the brief consideration of the few principles which I desire to emphasize.

FUNCTIONAL DISTURBANCES

Practically all diseases, whatever they may be, have a certain superstructure of symptoms, which we choose to call functional, superimposed on those for which an

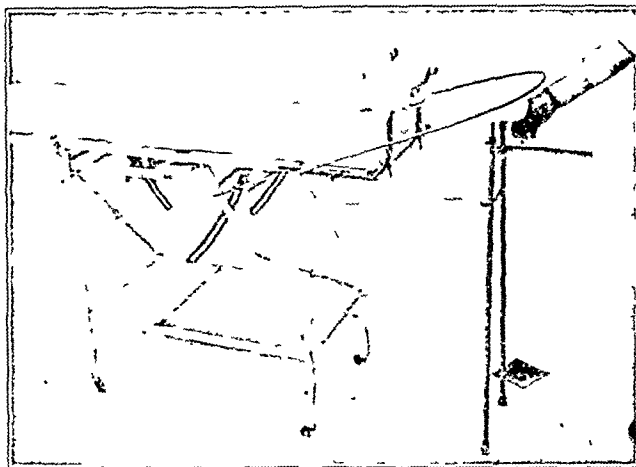


Fig. 2.—Showing table for cerebellar operations with outrigger shoulder supports, crutch for head, and hoop to support operative sheets.

actual organic lesion is clearly responsible. This superstructure may often so overtop the basal trouble, which may actually be trifling, as to completely obscure it, and neurasthenic or psychasthenic states result. This is especially true of lesions which primarily affect the nervous system itself; and no class of patients require so much personal direction and moral control as do many of these unfortunates.

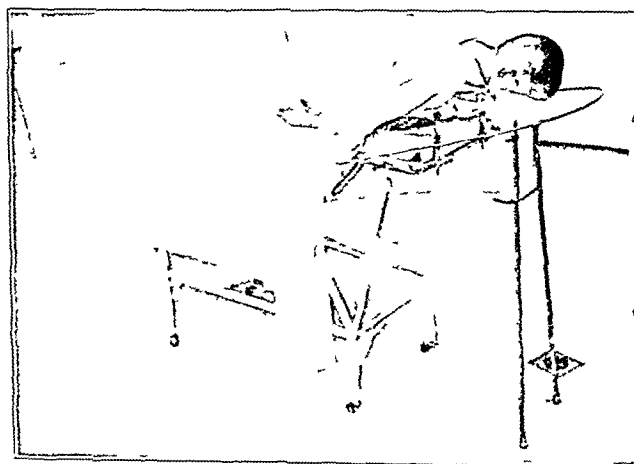


Fig. 3.—Same as Fig. 2 Patient in position before anesthesia.

Oftentimes the relief of the functional element is more to be desired than the cure of the organic lesion, even if one be recognized; and it is one of the deserved criticisms of many operators that we are apt to let our patients go with their organic lesion healed—may we say cured?—but with their functional distress unabated or even accentuated. It lies within the power—indeed it is the duty—of the surgeon who takes these cases in charge, not only to remove or improve the condition of

desired. The solution undoubtedly destroys the superficial parts of the operative field, closes the cut ends of the capillaries and lymphatic channels and apparently eliminates the danger of cancer cell implantation. In a recent case of sarcoma of the parotid the solution was applied directly to the carotid arteries and internal jugular vein; the duration of contact was too long; the vein became a brownish color and I feared that the destructive action would prove of detriment, but no untoward symptoms followed. We have used Harrington's solution in the surgical clinic at the Washington University with gratifying results. A few days ago a young man who had been struck on the lower lip with a pair of brass knuckles presented himself for treatment. Examination showed a gangrenous condition of a V-shaped portion of the lower lip. The gangrenous tissue was excised, the wound margins thoroughly cleansed with Harrington's solution and the parts sutured. Primary union followed. Sutures removed on fourth day.

REPORT OF CASES

CASE 1.—History.—Mr. J. K., aged 57, was readmitted in September, 1908. When a child he sustained a severe burn on left cheek. In January, 1908, he was struck in this region and shortly thereafter a small ulcer appeared and grew gradually larger. In May, 1908, it was as large as a silver dollar. On entrance, Dr. Drake found that the malignant mass was situated in the scar of the burn; the eye was intact. Healing did not follow excision of the growth. During the past two months the parts had become very painful and the growth markedly larger. Patient returned for excision of growth.

Examination.—This showed large, destructive growth on left cheek involving the orbital tissues and the cervical glands. General appearance of patient was very poor. Left side of face was paralyzed.

Operation.—Under ether anesthesia (preceded by morphin and atropin), a large flap was dissected from the neck, the left anterior triangle of the neck was cleared of glands and fat, Harrington's solution was applied both to the flap and to the operation wound, the latter was then sutured and the flap wrapped in gauze, and then covered with a towel, in the hands of one of the assistants. The orbital cavity was then cleaned out and the parts touched with Harrington's solution, after which the cavity was packed with gauze. After free excision of the growth on cheek and sponging the parts with Harrington's solution, the flap was sutured in position (Fig. 1). The orbital cavity was left open for x-ray purposes. The sutures in flap were removed on the fifth day, and the neck sutures on the seventh. Roentgen ray exposures were given every third day.

CASE 2.—History.—Mr. J. S., aged 56, admitted September 14, 1908. Four years ago he noticed a small growth on right cheek near malar eminence. Became larger and painful. Two years ago he had the growth removed, but the wound did not completely heal. During the past year the growth had been increasing in size and had become quite painful. Four months ago patient noticed small ulcer in middle of lower lip; this had been getting larger and would not heal.

Examination.—This was shown to be an epithelioma of lower lip; no palpable submental glandular involvement. Over the right malar eminence was an epitheliomatous mass as large as a silver dollar; the growth was very firm and ulcerated. The orbital cavity seemed free. The glands of neck were somewhat enlarged. The growth was movable.

Treatment.—Under ether anesthesia (preceded by morphin and atropin) a flap was dissected up from neck, the glands together with the periglandular fat, were excised and the operation wound sponged with Harrington's solution, after which the flap was likewise treated and wrapped in gauze, and the wound closed. The carcinomatous mass was then freely excised and the parts sponged with Harrington's solution, followed with saline solution. The flap was sutured in place and temporary dressings applied. After securing fresh instruments

and gloves, the submental glands and periglandular fat were removed and the operation wound sponged with Harrington's solution, and then sutured. The lip growth was then excised, the parts touched with the solution, and then sutured. Primary union followed. The illustration (Fig. 2) shows the wound five days after operation. The deep sutures were removed from cheek and neck on the eighth day.

REMARKS

I do not offer Harrington's solution as a substitute for proper surgical technic in cancer surgery, but as a valuable and efficient aid to the best possible surgical technic for the prevention of cancer cell implantation. Experiments are now in progress to determine the exact depth to which the destructive process extends when the solution is applied to a section of carcinomatous tissue for one, one and one-half, two and three minutes respectively. These results will be reported later. When the solution is applied to healthy tissue the destructive action is plainly seen.

At the present time I apply Harrington's solution to every part of the cut surface of the carcinomatous mass that is being removed; the growth is excised as rapidly and as carefully as possible, after the infected lymphatics and their periglandular tissue have been excised. After stoppage of hemorrhage in the wound the solution is applied to the entire field for one-half to one minute, depending on the character of the surface. In delicate flap operations the solution is very carefully applied. It is essential that all parts of the wound be touched with the solution. Where extensive dissections have been it is advisable to use a rubber-tissue drain. In intra-abdominal carcinoma the solution is applied to the abdominal wound after closure of peritoneum. When the extra-abdominal tumor is ulcerated Harrington's solution is applied for two minutes to the ulcerated portion.

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SOME PRINCIPLES OF CEREBRAL SURGERY*

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In the presence of an extrauterine pregnancy, of an inflamed appendix, of gallstones, of pyloric stenosis, or what you will, of the many intra-abdominal lesions so frequently encountered, how many surgeons feel less competent to recognize the condition than their colleagues who are disinclined themselves to handle scalpel and forceps? And further, would these very colleagues be willing for a moment to call the surgeon in consultation on these cases if they did not feel assured that he is as familiar as they themselves with the anatomy and physiology of the organ concerned and the morbid processes, with their complications, to which it is liable?

One of the trying responsibilities of many physicians arises from the consciousness that they must protect their patients from the over-zealous interest of the chance operator, whose manual facility exceeds his knowledge of disease, an attitude almost as deplorable as that in which the trained surgeon may find himself with his opportunity to relieve slipping by, owing to

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

portion of the scalp as needs to be prepared, just before the operation; of placing the patient on the table in the most comfortable position compatible with a good operative exposure before the anesthetization is begun; and of superficially outlining the proposed incision on the scalp after its final cleansing and before the small operative field is securely and closely surrounded with the sheets and towels, which are often pinned directly into the scalp to insure against their dislodgment during the course of what may be a long operation.

The large sheet which covers the etherizer is provided with a semicircular notch cut into one side, at the angles of which are fastened tapes to be tied around the patient's head, thus securely anchoring the coverings in such a position as to expose merely the area of the incision previously scratched on the scalp.

The two alternatives to this method—(1) the shaving of the head the day before with delineation on the scalp of the cerebral fissures or of the proposed incision with an indelible pencil, or (2) the leaving of the head so exposed after the final preparation of the field that the bony landmarks can then be utilized for these determinations at the time of operation—both possess serious drawbacks.

To some, these may seem petty details, but the total freedom from infection, even as a stitch abscess, in a



Fig. 7.—Patient with right subtemporal decompression, performed April, 1907, at a time when no recognizable focal symptoms were present. In May, 1908, a beginning loss of stereognostic perception in the left hand pointed to the position of the tumor in the right superior parietal lobe. It proved to be an encapsulated growth which was successfully removed. See Fig. 8.

series of three or four hundred craniotomies justifies the attention paid to them.³

I have already spoken of the fact that these patients, particularly in the presence of tumor, not infrequently show evidence before the operation of some respiratory embarrassment, and for this reason the administration of the anesthetic on the table in a position which assures free respiratory movements is a most essential precaution.

A special form of outrigger with head and shoulder supports (Figs. 2, 3 and 4) has been found neces-

sary, however, only for suboccipital or high spinal operations in which a symmetrical exposure is desirable, for reasons—on the principle, of dislocation—to be explained later.

I was led to adopt such a table extension owing to the respiratory difficulties which patients experienced⁴ when placed in a prone position without such supports, and further by the added difficulty to the anesthetist which this position otherwise engenders. Since its adoption these posterior operations, so far as position goes, have proved no more trying than those on the more accessible cranial vault.

It has been possible in my 24 cerebellar cases, largely owing to this device, to complete the operation in one sitting and thus to avoid a "two stage"



Fig. 8—Shows (above) the external surface of the tumor removed from patient, Fig. 7; and (below) the median section of the growth which is beginning to undergo central cystic degeneration. (Size slightly reduced.)

performance—especially undesirable in suboccipital work.

With a patient in this prone position it is difficult for the anesthetist to gauge fully the variations in cardiac action, and during the past six months Dr. Davis has employed in these, as in all other operations indeed, a simple device, so satisfactory that we wonder why it has not long since come into general use—namely, the *continuous auscultation of cardiac and respiratory rhythm during the entire course of anesthesia*.

The idea arose from a practice in the Hunterian Laboratory of auscultating the heart during the production

³ The only cranial operation in my entire series in which the wound has become infected occurred in another city where I had been persuaded to perform a decompressive operation for tumor, and where it was impossible to follow out usual routine.

⁴ My first operation for a cerebello pontine tumor resulted in a death from inhalation pneumonia—an experience which led to the adoption of this particular form of table extension. Since its employment I have had two successful extirpations of these lateral recess growths.

of experimental valvular lesions, and like other things has been carried from laboratory to clinic. The transmitter of a phenendoscope is secured by adhesive strips over the precordium and connects by a long tube with the anesthetist's ear, where the receiver is held by a device similar to a telephone operator's headgear (Fig. 4).

Uninterrupted information of the patient's condition

[A series of lantern slides was shown at this point, illustrating Dr. Cushing's chosen method of performing the usual osteoplastic craniotomy.—Ed.]

DECOMPRESSIVE MEASURES

Adopting, as I presumed, for the first time in English the term *trépanation décompressive*, introduced by



Figure 9.



Figure 11.



Figure 10.



Figure 12.

Figs. 9, 10, 11 and 12.—Photographs of the brain and its envelopes from a patient in whom a right subtemporal decompression had been performed for unlocalizable tumor. Symptoms not greatly relieved in consequence of unsuspected obstructive hydrocephalus. A month later a misguided lumbar puncture led to a promptly fatal issue. Note in Figs. 9, 10 and 11 the situation and extent of protrusion with complete absence of cortical adhesions; the hydrocephalus in Fig. 10; the tumor at A in Fig. 12, a right cerebellar glioma.

is thus given, and the anesthetist need not disengage a hand for the occasional palpation of the pulse, which is all that he is usually expected to do. On several occasions, by the prompt appreciation of change in heart-beat or respiration thus acquired, it has been possible to avert what otherwise might have been surgical disasters, owing to the immediate warning which led to the cessation of certain disturbing manipulations.

Jaboulay⁵ and used later by Broca and Maubrac⁶, together with suggestions offered chiefly by Horsley and Sanger, I described,⁷ in October, 1905, a method of de-

5. La trépanation décompressive (la mobilization de la voûte du crâne), Lyon Médical, 1896, lxxxiii, 73.

6. Traitement chirurgical palliatif des tumeurs cérébrales. Arch. Général de Méd., 1906, I, 129.

7. The Establishment of Cerebral Hernia as a Decompressive Measure for Inaccessible Brain Tumors, Sur., Gyn. and Obstet., October, 1905, 297.

compression for brain tumor by establishing a defect of bone and dura in the subtemporal region where a so-called mute area of the brain might protrude and yet receive a certain protection through the overlying muscle and fascia.

Subsequent to the appearance of this paper Spiller and Frazier published an article⁸ in which they collected, under the term "cerebral decompression," a long list of early cases in which exploratory operations for brain tumors had been followed by symptomatic benefit to the patient, even though the tumor was not found or removed, and these were spoken of as decompression operations. It must be clear to all that experiences of this kind were the forerunner of the decompression idea, and the possibility of palliation as the unlooked-for result of an exploration had been expressed by no one more concisely than by Robert F. Weir⁹ as early as 1888; as follows:



Fig 13—Photograph of posterior aspect of brain (inverted) in which multiple tuberculomas were present in the left hemisphere and cerebellum, and in which death resulted from lumbar puncture. Showing mould of cerebellomedullary hernia through foramen magnum

"One instructive point has appeared in connection with a case of my own, which is that though no tumor was found the patient's symptoms were materially improved from the relief afforded by taking away a goodly portion of the bone. The result may afford an additional reason for the justification of an exploratory operation, since if no tumor be found relief to the brain pressure can be at least temporarily obtained"

I particularly emphasized in my paper the fact that the operation which I proposed was conducted *primarily* for the purpose of relieving tension in cases of unlocalizable or inoperable tumors, and not that any craniectomy originally undertaken for exploratory purposes might in the end serve the purpose of relieving tension—a matter that had long been appreciated, as the quotation above indicates.

What I would wish again to lay stress on are the following facts:

⁸ Cerebral Decompression. Palliative Operations in the Treatment of Tumors of the Brain Based on the Observation of Fourteen Cases. Univ. Penna. Med. Bull., 1906, xix, 146; also THE JOURNAL A. M. A., Sept. 1, 1906, 679; Sept. 8, 1906, 744; Sept. 15, 1906, 849; Sept. 22, 1906, 923

⁹ Weir and Sequin. Contribution to the Diagnosis and Surgical Treatment of Tumors of the Cerebrum, Amer. Jour. Med. Sci., 1888, xcvi, 227-228

1. The operation is conducted through a split-muscle incision which exposes the thinnest and most easily removed area of the cranial vault.

2. The exposed area of the brain is a "silent" area, the possible permanent damage to which in consequence of a forcible protrusion leaves no appreciable symptoms.

3. An undue protrusion is obviated by the protection of the resutured muscle, fascia and galea (Fig. 5).



Fig. 14—Photograph of patient eight days after a Gasserian ganglion operation to show limits of incision, which are here clearly apparent; also partial shaving of head



Fig. 15—Same as Fig. 14, to show symmetrical wrinkling of brow and absence of other deforming consequences of the operative methods

4. Except in case of a growth so placed as to produce an internal hydrocephalus (Figs 10, 11, 12, and 13), usually a considerable, often a complete, subsidence of symptoms may occur.

I have spoken elsewhere of the undesirability of decompression over the presumed seat of a tumor, for the consequent dislocation of the parts, from protrusion of the brain, often leads to hemorrhage into or around a vascular growth, which greatly augments its size and may lead to an enormous hernia (Fig. 6). In other

words, an exploratory operation turned into a palliative or decompressive measure may be disastrous.

The subtemporal decompression is purposely made in a situation away from the growth and is not only, I think, the most desirable procedure for cases of tumor which present no localizing symptoms, but during the past year the measure has been used as a preliminary operation for the temporary relief of severe pressure symptoms, even when the location of the growth is evident and gives promise of being accessible at a later operation.

On a few occasions it has been possible through such a preliminary subtemporal decompression to preserve the osteoplastic flap raised at the subsequent operation for removal of the growth. Had the osteoplastic exploration constituted the primary operation, closure of the scalp would have been impossible without removal of the bone, and large defects of this kind in unprotected areas (that is, other than subtemporal or sub

have returned after periods varying from one to three years with an onset of symptoms pointing at last toward the situation of the lesion, which in a number of instances has been successfully removed (Fig. 7).

In other words, the decompression in a safe area has usually so relieved the general pressure symptoms as to make patients subjectively comfortable and with their eyesight retained—a considerable number of them indeed capable of earning their livelihood. Of the cases in which the growth has not been localized at the time of decompression, in some it has emerged, as it were, from its silent area and has shown focal symptoms; in others it has remained silent and in some instances indeed may even have metamorphosed into a cyst. Few of these patients would, I believe, have continued to live more than a few weeks or months, and some of them have passed from an actual bedridden state to active life again.



Fig. 16.—Photograph of patient seven days after the Gasserian ganglion operation. Note the invisible wound; the partial shaving of the head; the preserved action of the occipito-frontalis muscle.



Fig. 17.—Showing persisting area of total anesthesia three years after a ganglion extirpation.

occipital ones) are distinctly undesirable, even though, as Horsley has shown, aside from the deformity they may lead to no serious consequences.

I have stated on another occasion that no brain tumor may be so favorable for prompt operation as one which gives absolutely no clinical indications of its situation. Though difficult to make clear to many neurologists, the significance of this seemingly paradoxical statement is explicable in the light of some of our more recent experiences. For a number of years (the first subtemporal decompression was performed in September, 1903) these decompression operations have become a more or less routine measure in certain cases, until at the present time—taking the subtemporal operations alone—there have been about 100 all told, 60 of them for presumed supratentorial tumors. Though many of these patients remain comparatively free from all symptoms of pressure, what is more important, others

[At this point a number of lantern slides were shown, illustrating the steps of a subtemporal decompressive operation and of patients on whom the measure had been carried out, not only to relieve the increased tension of tumor but for other conditions associated with pressure, such as uremia and the cerebral edema accompanying basal fractures, cerebral arteriosclerosis, thrombosis and embolism of the cerebral vessels, etc.—Ed.]

LUMBAR PUNCTURE IN BRAIN TUMOR CASES

A brain tumor usually, though not invariably, increases the cerebral tension, causing thereby the underlying pressure symptoms of headache, dizziness, nausea or vomiting, and choked disk. This increase of cerebral tension leads, as we have seen, to a greater or less protrusion of exposed cortex through any operative defect which may have been made in the cranium and pachymeninx (Figs. 9, 10, 11, and 12). As is well known. Nature occasionally succeeds in relieving the tension

made by a new growth—in the young through separation of the sutures, and occasionally in adult life, if the growth is a superficial one, by an area of pressure absorption.¹⁰

Furthermore a greater or less protrusion is inevitable through the normal opening at the foramen magnum—a natural defect in the cranial chamber. As a result of this the brain stem with a surrounding fringe of cerebellum is crowded down into the spinal canal—a condition which is especially marked in the presence of a subtentorial growth; for the tentorium in a measure serves to protect the cerebellum and hind-brain from the pressure effects of supratentorial (cerebral) growths.

This protrusion of brain stem—an actual hernia cerebelli—is of the utmost importance in its relation to the performance of lumbar puncture. For it is undoubtedly due to the presence of such a hernia that withdrawal of fluid by the lumbar meninges, especially in cases of cerebellar tumor, has so often been attended with early fatality from respiratory failure, the continued pressure from above sufficing, on the withdrawal of the fluid support from below, to further wedge the bulb into the foramen in such a way as to cause pressure anemia of the vital medullary centers.

Not a few instances of disaster in consequence of lumbar puncture have been recorded in the literature, and six have come under my personal observation—three of them were fatalities in the medical wards after puncture in cases of unsuspected cerebellar lesion,¹¹ and three have occurred in my own surgical experience (Figs. 9, 10, 11, 12, and 13). If the brain after such an accident be removed from the cranial chamber soon after death, and particularly if hardened *in situ*, it will show the imprint of the foraminal ring about the protrusion which has been tightly jammed into the opening.

In Figure 13 the mould of this cerebello-medullary hernia is well shown in the brain from a patient with multiple cerebral tuberculomata—a single large tubercle in the left cerebellum having been unsuspected. During the course of a subtemporal decompression, owing to the great tension of the dura, a lumbar puncture was performed before opening this membrane. The fluid, under great tension, spurted for a moment from the needle, but ceased to flow after about 4 c.c. had escaped, when respiration almost immediately ceased. Under artificial respiration the dura was quickly incised, and though for a few moments normal breathing was resumed it soon ceased and the heart continued to beat for three hours as an isolated organ, which doubtless could have been kept in action under artificial respiration for a period indefinitely longer.

This is far from a unique experience,¹² but it is cited here for the purpose of emphasizing the hazard of lumbar puncture which exists in the presence of increased subtentorial tension.

In tumors above the tentorium, however, the continuous withdrawal of fluid during the course of an operation for decompression or for extirpation of a growth often proves an invaluable aid, and since I first called

attention to the practice¹³ it has frequently been employed. Helpful as the measure is and without particular risk, I believe, in solid lesions or edemas increasing the tension of the hemispheres, the possibility of an unsuspected cerebellar growth should always be borne in mind and the puncture not made unless the dura is exposed and ready for immediate opening in case medullary symptoms supervene.

In suboccipital explorations, on the other hand, the puncture would often be as dangerous as it is unnecessary, for one of the most important steps of these operations, after incision of the dura low down near the removed margin of the foramen magnum, is to open the exposed posterior cisterna and thus allow the pent-up cerebrospinal fluid to escape from above. If this precaution is not carried out the cerebellar tension often causes the hemispheres to bulge through the first dural opening so markedly as to rupture the pia-arachnoid and thus to cause extravasations which of themselves, through edema, rapidly increase the tension already present.

THE PRINCIPLE OF OUTWARD DISLOCATION

This leads me to speak of the principle of dislocation without injury of normal cerebral or cerebellar tissue during an exploration or in the approach to a surface lesion more or less difficult of access, of which cerebello-pontine tumors may be taken as a type. The thorough evacuation of cerebrospinal fluid from the basal cisternæ as mentioned above is of great assistance, but more important still is the bilateral opening with wide exposure of both cerebellar hemispheres. Under these circumstances, when one hemisphere is pressed to the side the other dislocates outward, giving a free view of the lateral recess without contusion of the easily damaged cerebellar tissue and without the field being obscured through blood staining. The latter is inevitable when a portion of the hemisphere is removed in order to give access to a tumor situated in this freely accessible angle. With a unilateral opening an equally free exposure is dangerous, if not impossible, without excision of a portion of the cerebellum.

This same principle is applicable to growths difficult of access in other situations, and I have found that in certain cases a preliminary subtemporal craniectomy, made some weeks or months before, proves sufficient for purposes of dislocation at a subsequent extirpation. For the approach to basal tumors in or near the midline I have occasionally made a large flap, with a wide dural opening, on the same side as that of the proposed exploration, and this has proved sufficient for thorough exposure in some cases, notably one of uncinate gyrus tumor and another of growth near the angular gyrus.

By applying this same principle I am confident that the best approach can be made to the pituitary body, though in these operations a bilateral opening is doubtless preferable—namely, a large exposure of the brain on the side opposite to that through which the pituitary fossa is to be exposed and a lesser cranial opening on the side of approach itself, with the smallest and lowest possible linear incision of dura. In this way the resistant membrane serves to protect the temporal lobe during its subsequent elevation, and through the large opening over the opposite hemisphere the brain readily dislocates outward in correspondence with the degree of

10. It may be said that in most cases of increased pressure, minute herniæ occur at the situation of the arachnoidal villæ, those that I have seen being particularly abundant over the under surface of the temporal lobes. Dr. S. B. Wolback has demonstrated that these minute surface irregularities are actual herniæ of the cortex. *Journ. of Med. Research*, July, 1908.

11. One of these cases was pictured and reported in the Mutter Lecture for 1901 (*Am. Jour. Med. Sci.*, September, 1902, 398). Quincke has since called attention to this same process as one of the dangers of indiscriminate lumbar puncture, ("Diseases of the Nervous System," edited by Church and translated from "Die Deutsche Klinik," D. Appleton & Co., 1908, p. 233).

12. I have recorded another case with 24 hours of artificial respiration, in my Mutter lecture, loc. cit.

13. Technical Methods of Performing Certain Cranial Operations. *Surg., Gyn. and Obstet.*, March, 1908, 237.

elevation exerted during the approach to the hypophysis below the contralateral hemisphere.

Dr. Lewis L. Reford and I have found that this method of Paulesco's, with some minor modifications of our own, is a most ideal way of exposing the pituitary body, at least in dogs.¹⁴ We have found too in corroboration of his experiments that the hypophysis is essential to life—a clean, simple, bloodless extirpation, if total, being followed by death in about 48 hours. To the loss of just what one of the three portions of the gland, which Schäfer and Herring have described, this is due, we are as yet unaware, but the knowledge is enough to call a halt for the time being in attempted hypophyseal extirpations for tumor. It is the case of the thyroid and myxedema, the parathyroid and tetany, over again.

GASSERIAN GANGLION OPERATIONS

In some intracranial operations, however, the definite indications and necessary technical methods are well established—in no operation more definitely than that for trigeminal neuralgia of the major form. Here, although a certain amount of pressure against the temporal lobe is essential to a perfect exposure of the ganglion, this pressure is made against a brain not already under tension, as when a tumor is present, but against one susceptible of a certain amount of compression: hence in these operations the principle of dislocation need not be taken into account.

There is an element of danger, however, in too great pressure, and I think it can not be questioned but that the high temporal operation, so courageously originated some years ago by Hartley and Krause, entails more risk on this score than the more recent and lower methods of approach.

The degree of compression can be estimated if a careful chart of the pulse-rate be kept during the operation, for the vagus effect, shown by a retardation of pulse-rate, is proportionate to the degree of pressure-transmission against the medulla. In my earlier cases a pulse-rate as low as 60 per minute was not infrequent during the progress of the manipulations: this, however, has not occurred of late, doubtless through the experience gained in carrying out the enucleation through a very low and shallow opening.

Krause a year ago reported seven deaths in his series of 51 operations, and in all the fatal cases contusion of the temporal lobe was found postmortem—an evidence, I think, of the undue elevation necessitated by the high method of approach. I am able at the present time to report 74 ganglion operations, with only two deaths—both of the fatalities having occurred early in the series at a time when the effort was invariably made toward complete enucleation.

At present the procedure is greatly simplified by the avulsion from the pons of the sensory root alone, the ganglion being left in its bed with a half-inch gap between its posterior border and its original pontine attachment—a space which, even granting the possibility of central regeneration, could hardly be bridged by a new nerve. I think the method is preferable to the simple section of the nerve as proposed by Spiller and

Frazier, not only for the reason given above, but also because it is possible to hook out the sensory foot intact, even in the many cases in which it is difficult or impossible to bring the structure sufficiently well into view to justify its actual division.

In the approach to the ganglion the incision (Fig. 14) should be so placed as to avoid (Fig. 15) the obtrusive droop of the brow which was an unavoidable consequence of the older methods owing to unilateral paralysis of the frontalis muscle. Similarly a careful closure of temporal muscle, fascia, and galea aponeurotica, can entirely prevent the objectionable flattening of the temporal region in consequence of atrophy of the muscle. Often the incision may be absolutely invisible a day or so after the sutures are removed (Fig. 16). The area of anesthesia remains permanent (Fig. 17); and the return of sensation to the forehead, or its retention there wholly or in part after the operation, indicates only a partial success and a possibility of return of pain in the ophthalmic division. There is no authentic case of recurrence of neuralgia after total extirpation or complete removal of the sensory root.

In all surgery I know of no more satisfactory measure than a successful ganglion operation nor of one which more certainly and more permanently relieves a larger measure of incapacitating pain. However, no one should attempt these operations who has not seen to the education of his own and his assistant's reflexes to the highest possible degree in the performance of every particular step by operations on animals and by constant and repeated practice on the cadaver. Otherwise it is much safer for him to cling to the methods of temporary relief through peripheral operations, whether they be restricted to the injection into the nerves of mordants or to the removal of such of the branches as can be with drawn without leaving the patient's face scarred—something the ganglion operation does not, or should not, do.

SUMMARY

I have attempted to elucidate some matters in regard to a branch of surgery which in its present formative stage can only be safely undertaken with the best possible understanding of neurology. The few technical points which I have chosen to emphasize are:

1. The continuous auscultation of the heart-beat and respiration during anesthesia.
2. The subtemporal decompressive operation as an early measure and a step preliminary to a possible subsequent tumor extirpation.
3. The dangers of lumbar puncture in the presence of a degree of subtentorial pressure sufficient to produce a cerebello-medullary foraminal hernia.
4. The value of a continuous lumbar drain during the course of explorations for lesions of the hemispheres.
5. The principle of outward dislocation of normal tissue to avoid the risks of compression or mutilation during deep explorations.
6. The satisfaction of such intracranial procedures as the ganglion operation for trigeminal neuralgia when once they are put on a basis of comparative safety.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. CUSHING, HARTLEY, M'KERNON AND COAKLEY*

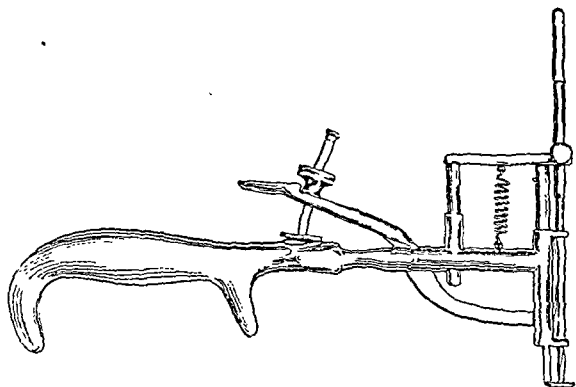
DR. JOHN B. MURPHY, Chicago: The important lesson all of these papers bring to us is that there is here a splendid field for excellent work, to be explored by trained hands, and

14. Technical experience with difficult procedures such as this (and I may include the ganglion operation) can be acquired in no way so satisfactorily as by practice on living animals. Although the mere anatomic relations must be learned on the human cadaver before the operation can be transferred to man, nevertheless the experience of handling the central nervous tissues, of stopping bleeding from bone, membrane and brain, can be and should be acquired on the lower animals.

* The papers of Drs. Hartley, McKernon and Coakley appeared in THE JOURNAL last week.

that no other should attempt it. I wish to call attention to a few matters unconnected with the technic of these operations. The ligature is splendid for the control of hemorrhage. Ligation of the external carotid can be accomplished in a few seconds, and in one condition particularly this ligation has been neglected for a great many years at a great life cost, and that is in hemorrhage from the middle meningeal artery. The general practitioner who does not do much surgery can ligate the external carotid artery the moment he notes the first symptoms of hemorrhage of the middle meningeal artery. These symptoms are so clear-cut that the diagnosis can readily be made. One does not have to hurry with the intracranial operation or do it under unfavorable conditions, because after ligation of the external carotid artery one can do the operation when the patient is in a favorable condition for the removal or relief of the compression. An instrument devised by Dr. Neff is arranged to fit itself to any depth of cranium. It is an ordinary revolving drill and can be directed in any line desired. It does very good work. I have found no very satisfactory machine for cutting the cranium.

The small size of the flap has hampered operations of this kind. That was brought out by Drs. Cushing and Hartley, showing that we may have a large-sized flap, but we must not have a profuse hemorrhage, because that is the greatest danger in all of these operations. The next important matter referred to was the palpation and examination of the brain after the dura mater had been opened. The experienced hand frequently can locate an encapsulated tumor or cyst. We have devised a double needle which has a blunt probe end and an



Early model of cranial drill devised by Dr. Neff, referred to by Dr. Murphy.

opening so that when it is withdrawn one-sixteenth of an inch the lumen of the needle is opened and the contents of the cyst can easily be withdrawn. By keeping the opening closed until the capsule is punctured it is easy to withdraw any fluid.

Another practical matter is the advantage of the peripheral sacral cistern in drainage. In the infections with accumulations in the cerebrospinal tract you can avail yourself of the large sacral cistern or of the cerebellar cistern for the relief of pressure. The significance of the closure of the foramen of Majendie lies in the production of atrophy of the optic nerve—central hydrocephalus without peripheral hydrocephalus; if that continues optic atrophy always results and persists because regeneration is impossible. This operation I performed in 1896, by opening and establishing a communication between the central and peripheral cisterns. In the central compressions of the optic nerve it was found that the re-establishment of this opening would prevent atrophy of that nerve. I paid a very severe price recently in operating on a case of ependymal spina bifida with paralysis of the lower extremity. The foramen of Majendie unfortunately was closed. I noticed that the child had central accumulation in the ventricles, but I felt that the foramen of Majendie was open and I permitted the patient to return home. To my horror and surprise, within six weeks, I was notified that vision had entirely disappeared. There was a central accumulation and a complete atrophy before I was notified, when I could have easily—it is not a difficult operation—have resected a V-shaped piece of the velum.

DR. A. JANSEN, Berlin: Like Dr. Coakley, I have seen very few cases of cerebral complication. In my observation of about 800 operations on accessory sinuses I saw three patients, on whom operation had not been done, with purulent meningitis, and about 6 cases of large extradural abscesses. There was no case of brain abscess, and only one of a severe serous encephalomeningitis with unconsciousness, lasting several days. The result was recovery after a purulent focus in the posterior ethmoidal cells, near the optic foramen, had been emptied. When an operation is indicated on account of suppuration of the accessory sinuses, I have little fear of cerebral complications. This comes into consideration only when there is severe pain and other indications of retention of pus. I should like to call attention to the importance of serous meningitis and encephalomeningitis in their relation to purulent meningitis, and also to the fact that that purulent meningitis has been cured in a number of cases. Finally, I desire to call attention to the importance of the disturbances caused by cerebral complications affecting the vestibularis, appearing as disease of the nerve, basis or central organ (Deiters' nucleus). The principal lesions to be taken into consideration are abscess of the cerebellum or tumor of the auditory nerve. The complication of tumor of the auditory nerve with purulent labyrinthitis is especially hard to diagnose. In several such cases, lumbar puncture showed pneumococci in the fluid. The postmortem in one case showed an inoperable tumor of the auditory nerve, which had destroyed the cerebellum as far as the fourth ventricle. Nystagmus varies according to whether the peripheral end organ, the nerve, or the central organ is attacked. In the affection of the end organ, nystagmus is directed toward the healthy side of the head. In my case of tumor of the auditory nerve and in several abscesses of the cerebellum, it was directed toward both sides, but it varied. In looking toward the diseased side, the excursions were very extensive but infrequent; but in looking toward the healthy side the movements were very quick and minute. These differences seem to me to be of value in the diagnosis of tumor of the auditory nerve and suppuration of the labyrinth.

DR. V. J. BACCUS, Chicago: Since asepsis in the cranial region is even more important than in the abdominal cavity, attempts have been made to secure a perfect aseptic isolation of the operative field. Long ago Fenger and Murphy, while operating on the head, isolated the field of operation by carrying the rest of the aseptic sheet over the anesthetizer. In the lantern-slide demonstration of operative technic on the skull shown here, no provision was made to isolate the head from the nose and mouth of the patient and the masks and hands of the anesthetizer. This can readily be accomplished by encircling the head with the aseptic sheet and resting it on vertical table supports. The next important factor in exploratory operation on the cranium is to make a large flap. The ligation of the external carotid as recommended by Dr. Murphy need not be applied to all cases of skull surgery, as a routine procedure. According to statistics, the majority of surgeons do not ligate the external carotid artery as a preliminary step. When there is a possibility of injury to the middle meningeal artery, as in operating for the removal of the Gasserian ganglion, it may be necessary to resort to ligation of the external carotid.

DR. ROBERT F. WEIR, New York: Those of you who have lived long enough will, perhaps, remember the birth of modern brain surgery. In 1875-80, thanks to the urgent encouragement of some of my friends in neurologic practice, I was led to enter on this field. It was not a long invasion, because it dawned on me early that I was attacking tumors of the brain, most of which were malignant or which were local manifestations of a severe general disorder, such as tuberculosis and cancer. I learned soon that I was doing a very dangerous operation, and that I could give the patient only a comparatively short prolongation of life. It discouraged me, I admit. Also the results in connection with epilepsy were not very satisfactory as operations were then done. My zeal was not, however, quenched, and I entered on the work in other directions, such as entering the substance of the brain in cases of deep hemorrhages, or exposing by lifting up the brain en masse for traumatic hemorrhage at its base on one or both

sides, or removing large surfaces of bone for the purpose of reaching and draining a suppurative meningitis. The great discouragement, however, I met brought me to the termination of my "brain" career and my enthusiasm departed and led me to go in other surgical directions.

As the outcome of my short experience, running over five or six years, three things of value have remained up to the present time. These have been alluded to in the admirable papers presented here to-day. The first was the rubber band around the head. We tried many ways to stop the annoying hemorrhage from the scalp. The rubber band I first resorted to at the suggestion of Dr. M. Allen Starr and it proved of such value as to retain its place in surgery. The second thing was the use of celluloid plates to fill in defects in the skull where bone had been destroyed by earlier operations, such as by multiple trephining or by grooving or by chiseling. I resorted to the use of these plates, perforated or non-perforated, also in fractures as well as in the brain tumor operations, following the example of the German surgeon, Fraenkel, and found their use very satisfactory. In one instance I kept track for five years of a patient in whom it was inserted for a large opening in the skull and found no disturbance arising from its retention. Dr. Cushing has alluded to the outcome of our experience of two unsuccessful attempts to find the tumor after a cerebral exposure. We succeeded here to an unexpected degree, however, in relieving the patient of distressing symptoms and advised then that such a procedure should be carried out in subsequent cases, which has been done to a large extent in recent years.

DR. WILLY MEYER, New York: On the basis of personal experience I favor proceeding in the same way in the posterior fossa of the skull as in other parts of the skull, namely, by arranging for an easy access to the brain by a wide removal of bone—wider than is usually advocated. It has been advised that operation for tumor of the occipital region be done in two stages, also that access to it, especially to those tumors situated at the ponto-cerebellar angle, be gained by partial or total removal of the respective cerebellar hemisphere. This advice, it seems to me, should not be accepted without thorough discussion. A number of such operations in two stages are on record in which the patients died shortly after the bone operation had been completed, and the tumor was never exposed. In the interest of asepsis, it seems to me, we should try to get through with the work in one sitting. Furthermore, it stands to reason that, if we can accomplish our aim with the cerebellum left intact, this must mean a gain to the patient.

With these points in view, and inspired by the excellent work of Cushing, Hartley and Frazier on this side of the Atlantic and of Krause abroad, I recently undertook an operation for tumor of the left auditory nerve in a girl, 27 years old. I do not think that osteoplastic operation can ever be done to advantage in this region, mainly on account of our inability to control hemorrhage properly, which, as is well known to those familiar with this kind of work, may prove alarming at times. (I would mention parenthetically that I have found Horsley's wax of great help in controlling hemorrhage in these cases.) Therefore, after having formed and turned down a large horseshoe-shaped skin-muscle-periosteal flap, and, according to Cushing, dividing it in the middle, I removed the entire occipital bone, first thinning it with a grooved chisel, then biting it with rongeur forceps. Of course, I carefully avoided the external occipital protuberance. The border of the foramen occipitale magnum was fully exposed. Then followed double ligature and division of the longitudinal sinus, heart-shaped incision of the dura mater and turning down of the flap. Now the entire cerebellum was before our eyes. With the help of a long brain spatula I reached the internal auditory foramen and, with the electric reflector, clearly saw the tumor, of the size of a small hickory nut, involving the auditory and facial nerves. This was bluntly removed. Acute edema of the brain prevented the proper return of the dura mater flap. The latter just sufficed to cover somewhat more than the lower half of the cerebellum. Injury to the exposed brain from the irregular, roughened occipital protuberance was carefully guarded against by gauze tamponade. The skin flap was sutured in place. The patient

made a good recovery. Having been almost totally blind before operation, with staggering gait and all the other symptoms of brain tumor, she is now able to read almost the smallest print. Her gait is improving steadily; she has done some needlework within the last few weeks, and we may now hope that she will go on to complete recovery. This case shows that easy access to the cerebellum obtained by the removal of a large piece of bone enables us to avoid pressure injury to the medulla or pons and renders unnecessary the removal of portions of the cerebellar hemisphere.

DR. HARVEY CUSHING, New York: Widely different operative methods have been advocated in this morning's session by the different speakers—methods which have the same end in view, namely, the most rapid way of entering the skull compatible with perfect safety. It goes to show partly that the individual needs of one operator are not necessarily those of another, and partly that familiarity with a given set of instruments breeds facility in their use. After all, the best osteoplastic method of exploration is chiefly a matter of technical interest. What those of us who are interested in neurologic surgery are trying to do is not so much to perfect methods of rapidly laying bare the surface of the brain as to perfect our ability to diagnose a cerebral lesion and to evolve the proper methods of dealing with it when once the skull has been opened. We are only at the beginning of these matters, though strides forward are being made daily by the leaders in this work. It does not make any difference whether the bone flap is turned down by one method or another—provided, indeed, a bone flap is necessary, and often in fact it is not. It is what is to be done on the inside that is vital, and for this some knowledge of neurology is absolutely necessary; and that is the plea I wish to make to-day—the necessity of a neurologic training for those who wish to follow this particular kind of work.

Dr. Weir's contributions to this field of surgery made twenty years ago are well known to all who have made themselves familiar with the early literature of the new cerebral surgery; but I think that he is a little too optimistic about some of these present endeavors of ours, and Dr. Murphy's unbounded enthusiasm must not make us go too fast. Thus, his anticipation of twenty-five extirpations of the pituitary body within the next year, if they are "successful," or, in other words, total, means unquestionably twenty-five deaths in the twenty-five cases, for recent work has shown that the pituitary body—or I may say a portion of the pituitary body—is absolutely essential to life.

DR. FRANK HARTLEY, New York: Two things of importance for the next year are the production of instruments which can be used by every one and of a simpler means of stopping hemorrhage. The various saws and drills which are used now, and which are necessary to do rapid work, require a long period of tuition before one can use them safely. Therefore, I think that it would be a great advantage to have, in the first place, instruments which could be used by any one with perfect ease and safety. In the second place, I think that the thing which will advance cerebral surgery more than any other will be some simple method of stopping hemorrhage. As soon as we stop the hemorrhage, we diminish the shock; when we diminish the shock and stop the hemorrhage, we can spend a time in enucleating the growth from the cerebellum or cerebrum or whatever point we are trying to reach.

DR. CHARLES H. FRAZIER, Philadelphia: I feel very much as Dr. Cushing does about the development of cranial surgery. We are just making a beginning again in this field, it seems to me, after the setback which the work received at the hands of the German surgeons, notably von Bergmann, not many years ago. We have accomplished certain things, such as the development, I might almost say perfection, of the technic of exploratory operations for lesions anterior to the tentorium cerebelli, and the technic of operations on the Gasserian ganglion. As to operations for lesions posterior to the tentorium cerebelli the technic seems to me in many ways deficient. We have not, as Dr. Hartley pointed out, discovered a way of adequately controlling hemorrhage, and, no matter what efforts

we make, hemorrhage may be so profuse as to become alarming in a few minutes after the operation has been begun.

We have heard nothing to-day of the two-stage feature of cranial operations, and I take it that it has been very largely abandoned, and, I think, properly so. By means of blood-pressure observations we can determine with reasonable accuracy the condition of the patient, and there is no reason why, once the tumor or lesion has been exposed, we should not at once proceed to its removal. The dangers of infection from reopening the wound and of a second anesthetization are so great as to make the two-stage operation absolutely unjustifiable. The decompressive operation has become so popular of late that there is a danger of its adoption in cases in which an exploratory operation is clearly indicated. Although decompression entails less risk to the patient, it is less difficult and requires less experience. When there is the least suspicion of the presence and location of a lesion, it is the surgeon's duty first to explore the region under suspicion; failing to find it, he may then conclude the operation with the removal of as much of the dura and bone as may be necessary to effect decompression. If this course is not adopted, many operable lesions will be overlooked and the percentage of absolute recoveries proportionately decreased.

DR. C. G. COAKLEY, New York: I did not go into the matter of deaths following operation at all. I merely spoke of the cases of sinus disease which in the last few years were almost invariably fatal because no operation was done; but the tendency now is to operate and a certain proportion of these patients will recover that would have died.

DECAPSULATION OF THE KIDNEYS FOR CHRONIC BRIGHT'S DISEASE

WITH A REPORT OF THE RESULTS, IMMEDIATE AND
REMOTE, OBTAINED IN 102 CASES THUS TREATED.*
GEORGE M. EDEBOHLS, M.D.

NEW YORK

When, in 1901, I suggested treating chronic Bright's disease by decapsulation of the kidneys, I placed myself under a moral obligation to report the results after a sufficient length of time had elapsed. In fulfilment of this obligation the present report is submitted:

The working theory on which I based my procedure of renal decapsulation for chronic Bright's disease was that by the removal of the impervious capsule an opportunity was created for the formation of new vascular connections between the blood vessels supplying the secreting structures of the kidney on the one hand and the blood vessels and tissues surrounding the kidney on the other. An additional blood supply is thus created for the kidney. The increased blood supply and activity of circulation are depended on to improve the working coefficient and gradually to restore the health of the kidney.

My observations on the kidneys of some of my patients who have died months and years after decapsulation, or whose kidneys I have decapsulated a second—and in one instance a third—time, have invariably demonstrated the formation of a more or less abundant new blood supply as the result of operation. While the creation of a new blood supply to the kidney readily explains the clinically established fact of continued and lasting improvement in the work of a diseased kidney after decapsulation, it fails to explain fully

and satisfactorily the immediate beneficial effects so often witnessed. I have never in any of my operations for chronic Bright's disease found the capsule tightly stretched and compressing the kidney. Generally it fits the kidney, and sometimes the kidney even appears to be somewhat shrivelled or contracted within the loosely fitting capsule. Even in far-advanced chronic interstitial nephritis with greatly thickened capsule, the reduction in size of the kidney appears to be due rather to contraction of the new fibrous interstitial tissue of the kidney itself than to compression of the capsule. I believe that the immediate good effects of decapsulation can be explained by the necessary manipulation, amounting in reality to a massage of the kidney, during operation. The immediate stimulation of the existing blood supply of the kidney thus effected, supplemented by the relief to congestion afforded by the direct abstraction of more or less blood from the organ during operation, suffices for the immediate needs of the kidney and carries it along until its supplementary new circulation becomes established. If we can cure chronic Bright's disease by renal decapsulation we can well afford to wait until time and further observation bring the explanation of the exact physiologic effects of the operation.

One invariable effect of renal decapsulation is the formation of a new capsule. This becomes distinctly organized in from three weeks to three months, is sometimes thicker, sometimes thinner, but always more succulent and vascular than the original. It has been suggested that this new capsule must inevitably contract and lead to injurious compression of the kidney with a return of the symptoms. This argument is not based on actual observation, nor is it in harmony with the results of animal experimentation, or with the clinical facts. I now give but little thought to the question of possible danger of contraction of the new capsule. The immediate effect of decapsulation is to increase the daily output of urea and cause the disappearance or lessening of uremic manifestations. I have known a daily excretion of 6 grams or less of urea, prior to operation, to be increased to a steady output of 30 to 35 grams within a month after operation.

Renal decapsulation enables any given kidney to do the best work which it is possible for that particular kidney to do. I now decapsulate every kidney operated on for any purpose, and believe that the other kidney should be explored and decapsulated before completing a nephrectomy. For the purposes of this report the diseases of the kidney are classified as: first, interstitial nephritis, those cases in which the gross evidences of inflammation of the connective tissue of the kidney predominate; second, parenchymatous nephritis, those in which the involvement of the secretory apparatus forms the salient feature; and, third, diffuse nephritis, those inflammations of the kidney characterized by implication in fairly equal degree of both the parenchyma and the connective tissue of the organ.

The diagnosis of chronic nephritis on the living subject is easy after some experience, the pathologic changes being more appreciable with the blood circulating through the kidney than they are after death. It is easy to recognize in the adherent capsule, nodulation, granular condition of the subcapsular surface, shrinking, unequal contraction, and occasional cyst formation, a chronic interstitial nephritis; or by the enlargement, cloudy swelling, mottling, and discolorations due to

*Owing to the illness of the late Dr. Edebohls, which prevented his attendance at the Section on Surgery and Anatomy of the American Medical Association, Fifty-ninth Annual Session, Chicago, June, 1908, this paper was read by Dr. Samuel Lloyd. Because of lack of space, the article is here abbreviated by the omission of the elaborate bibliography which appears in the Transactions of the Section and in the author's reprints.

circulatory and degenerative changes, a chronic parenchymatous nephritis; or by the thickening, general or localized, of the capsule, and the secondary inflammatory changes in the perirenal fat common to both varieties, a chronic diffuse nephritis. The variations in density and hardness, quite frequently varying widely in different parts of the same organ, are also readily appreciated. I now find no difficulty in promptly determining at operation whether or not a kidney is affected with chronic Bright's disease.

I now advise renal decapsulation for every sufferer who consults me for chronic Bright's disease, and who has a reasonable expectation of not less than a month of life without operation. The three conditions which lead me to advise renal decapsulation are: First, the clear and unequivocal establishment of the diagnosis of chronic Bright's disease; second, the absence in a given case of absolute contraindications to any operation; third, the possibility of securing the services of a surgeon practically familiar with the surgery of the kidney.

As soon as a nephritis has become chronic it is an absolute indication for decapsulation. The earlier in the course of chronic nephritis an operation is performed the better will be the patient's chances of a perfect cure. Renal decapsulation is indicated in all varieties of chronic nephritis. I no longer advise against operation on account of advanced age, provided the patient be otherwise in reasonably fair condition. It must be borne in mind that all patients with chronic Bright's disease have more or less hypertrophy of the heart. As long as the enlargement is mainly hypertrophic and not due to dilatation, and as long as the hypertrophy is concentric, an anesthetic may be administered with a reasonable degree of safety. It is only when dilatation of the heart predominates over the hypertrophy that the danger of sudden death from acute dilatation is ever present, and no general anesthetic should be administered to such a patient. In my opinion the most ominous auscultatory sign of predominant dilatation of the heart and danger of sudden death is insufficiency of the aortic valves, as denoted by an intermittent aortic regurgitant murmur occurring every third, fourth, or fifth beat, and even less frequently. When this condition is clearly present and can not be removed by suitable medication, the patient is very near the end of life and I advise against operation. During the course of recent years I have had the unexpected pleasure a number of times, on examining patients at periods remote from operation, of finding that very pronounced cardiac hypertrophies and derangements had become totally insignificant, and in some cases had even entirely disappeared, as the health of the kidneys was gradually regained. These changes for the better in the condition of the heart I have come to regard as the surest indication that the health of the kidneys is improving.

Retinitis albuminurica demands careful consideration in determining for or against renal decapsulation. Edema or dropsy of the retina must be differentiated from true retinitis with hemorrhage or exudates. The former may disappear, the same as a dropsy in any other part of the body. The importance of true retinitis albuminurica in relation to renal decapsulation lies in the fact that it is one of the late manifestations of chronic Bright's disease. Its occurrence signifies that general changes produced throughout the body by advanced that they will cause

death, even though the function and health of the kidneys can be restored by operation. It also indicates such widespread disease of the vascular system that the danger of rupture of blood vessels in any part of the body is always imminent. Among the first 72 patients, 9 had retinitis albuminurica at the time of operation. The unfavorable outcome in these cases has led me for the past three years to decline to operate on patients who had well-marked albuminuric retinitis. The only point that requires emphasis in the operation is the necessity of securing union by first intention.

The changes in the patient's condition and general health after decapsulation are nearly always impressive, and in some cases simply marvellous. The improvement is progressive, continuing and increasing even after the patient has resumed his usual avocation. This is due to the improved work of the kidneys, as denoted especially by the increased daily urea output.

My own experience with renal redencapsulation has thus far not been very encouraging. Were it not for the impression created by the case of Peabody, I should feel opposed to further trial of a second decapsulation in cases in which the first operation failed to initiate the cure. The only indication for a second decapsulation that would appeal to me would be in the case of a patient acquiring a new chronic nephritis after having been entirely cured of a first chronic nephritis by the first decapsulation.

Renal decapsulation for puerperal convulsions of renal origin are really renal decapsulations for subacute or chronic nephritis, at least that has been my experience.

Whatever merit may be claimed for or accorded this report of the result of my renal decapsulations for chronic Bright's disease must be based entirely on the fidelity and persistence of purpose with which the histories and postoperative fortunes of my patients have been followed and recorded. This report embraces all my operations performed on the kidneys with the hope of curing or improving existing chronic Bright's disease up to the end of May, 1906, the patients numbering 102 all told. Nearly fifteen years have elapsed since the first operation, and fifteen months represent the shortest period of observation after operating in any of the surviving cases—an average of five years for each of the 102 cases has elapsed since operation. All but 3 of the 102 patients are fully accounted for; the 3 cases unaccounted for were lost sight of years ago.

With 99 of my 102 patients I have managed to keep in touch continuously from the day of operation until either the date of their death or the present day. In the case of those who died, I have succeeded in obtaining the exact date as well as the cause of death in each instance. The vast majority of my cases were private: scarcely half a dozen belong to the class of hospital-ward cases. This has been of material assistance in following the after history of these patients. The patients themselves have freely and voluntarily cooperated in the attempt to solve the question of the curability of chronic Bright's disease. Whenever I have failed to hear from a patient for a period of six months I have made inquiry either of the patient or of the attending physician. I consider myself exceptionally fortunate in having succeeded in obtaining from all but one or two a twenty-four-hour specimen of urine at fairly regular intervals of time since the operation. The last specimens of urine from all but three of the survivors has been obtained within the past few months.

SUMMARY OF CASES

Since the publication of my book in 1904 I have continued to follow and record the further histories and fortunes of my surviving patients, as well as of those operated on in 1904, 1905, and the first half of 1906. I have thus managed to keep together this entire clinical material as a compact whole. I fully realize that in order to obtain recognition and acceptance by the profession at large for the surgical treatment of Bright's disease a sufficiently large number of cases of chronic nephritis observed for a sufficient length of time after renal decapsulation was an absolute essential. I believe that this report will show that this purpose has now been fulfilled. This report will probably be my final one,¹ and it is hoped that it will be received and accepted by the profession in full and complete discharge of the moral obligation assumed by myself when I first proposed to treat chronic Bright's disease, as such, by surgical measures.

SEX

Of my 102 patients 50 were male and 52 female.

AGE

The youngest patient was 4½ years, the oldest 67 years of age. The average age of the 102 patients at the time of operation was 39 years and 8 months.

OCCUPATION

Notes concerning the occupation of patients were rarely made, the matter not being deemed of sufficient practical interest. Fourteen of my patients were themselves physicians, and five were immediate members of physicians' families.

HISTORY PRIOR TO OPERATION

The majority of the patients at and before the time of operation presented either all or the most serious of the well-known clinical features of the disease. Some suffered in one way or another without having such a pointed history as unmistakably to indicate chronic Bright's disease. A few were absolutely unaware of any serious impairment of health until the occurrence of paralysis, of retinitis albuminurica, of uremic convulsions, or the discovery of albumin and casts in the urine on application for life insurance brought them suddenly face to face with the fact that they were affected with a fatal malady. It is a well-known fact that chronic Bright's disease frequently develops and progresses in an insidious manner, so that the advanced and final stages of the malady are often reached before the patient is aware that there is anything greatly wrong.

PHYSICAL CONDITION AT TIME OF OPERATION

Equally great with the differences in the symptoms produced by the disease were the physical manifestations and objective signs presented by the various patients on examination prior to operation. In comparatively few there were absolutely no manifestations of chronic nephritis except such as examination of the urine revealed. Others, again, suffered from all conceivable ravages of the disease in distant parts of the body—the brain, the visual organs, the heart and lungs, the digestive system, etc. Between the two extremes mentioned all shades of variation were encountered.

LENGTH OF EXISTENCE OF CHRONIC BRIGHT'S DISEASE PRIOR TO OPERATION

One of the most difficult things to determine is the exact date of the beginning of chronic nephritis. Perhaps the only time when this can be done with absolute exactness is when the chronic nephritis is the outcome or the continuation of an acute nephritis occurring either as a primary affection or as a complication of other diseases: influenza, scarlatina, typhoid

fever, diphtheria and other general infections in which the kidneys are liable to become involved. Even then our conclusion that the nephritis dates from such an event may not be correct. The patient may have had chronic nephritis prior to the occurrence of the infectious disease, and the acute nephritis supposedly induced by the infection may in reality have been only an acute exacerbation of an already existing nephritis. Uncertainty in this respect pertains even to those cases of nephritis which the history indicates as having originated during a pregnancy.

Subject to the restrictions and limitations just stated, an attempt has been made to determine the probable duration of the chronic nephritis prior to operation in each patient from the length of time that the symptoms have existed. Judged by this admittedly defective standard, the average duration of chronic Bright's disease prior to operation in my 102 cases was four years. That the average duration, as thus estimated, falls far within the real limits is very certain.

In 85 of the 102 patients the period of time prior to operation at which examination of the urine first revealed the presence of chronic Bright's disease could be accurately determined. In these 85 patients the duration of chronic Bright's disease prior to operation, as known from urinalysis averaged 2 years and 11 months.

DATE OF OPERATION

The first of my 102 patients was operated on Nov. 29, 1892; the last on May 31, 1906. Nearly fifteen years have passed since the first operation, and fifteen months have elapsed between the last operation and the date of this report.

PLACE OF OPERATION

One hundred and nine operations were performed on the kidney or kidneys of my 102 patients, 7 of the patients having two kidney operations. The 109 operations were performed in the following places:

My private hospital.....	40
New York Postgraduate Hospital.....	37
Home of the patient.....	15
St. Francis Hospital, New York.....	14
Galt General Hospital, Galt, Ontario, Canada.....	1
Dr. H. D. Fry's private hospital, Washington, D. C.....	1
Virginia Hospital, Richmond, Va.....	1

NATURE OF OPERATIONS PERFORMED ON THE KIDNEYS.

	Sittings.	Patients.	Operations.
Decapsulation of both kidneys....	1	69	69
Redecapsulation of both kidneys..	1	..	4
Decapsulation and fixation of both kidneys	1	17	17
Decapsulation and fixation of both kidneys	2	2	4
Decapsulation of both kidneys and fixation of right kidney.....	1	4	4
Decapsulation of one kidney and removal of the other.....	1	2	2
Decapsulation of one kidney and removal of the other.....	2	1	2
Decapsulation and fixation of right kidney	..	7	7

It will be noted that in 7 cases only one kidney, always the right, was operated on; while in 95 cases both kidneys were submitted to operation. Ninety-two of the 95 bilateral operations were performed at one sitting; in three instances the right and left kidneys were operated on at two separate sittings. Both kidneys of two patients were decapsulated twice, and both kidneys of one patient three times.

ANESTHETIC

The following list shows the number of operations in which each of several anesthetics was employed, alone or in combination:

Nitrous oxid and ether.....	63
Ether	19
Chloroform	11
Chloroform and ether.....	4
Chloroform and oxygen.....	1
Nitrous oxid and chloroform.....	1
Nitrous oxid, ether and chloroform.....	1
Nitrous oxid, oxygen, ether and chloroform.....	1
Nitrous oxid and oxygen.....	8

I have had the good fortune in the majority of these 109 operations to have at my command the services of specialists

1. EDITOR'S NOTE: Dr. Edebohls died Aug. 8, 1908.

and acknowledged experts in the administration of anesthetics, and when such was the case the choice of anesthetic was left with the anesthetist. I can see no good reason, however, why any surgeon should not use in his kidney operations the same anesthetic to which he is accustomed in his operative work generally. To this broad rule there are exceptions, special reasons for the preference of a particular anesthetic being now and then given by the predominance of particular complications, especially those affecting the heart, lungs and vascular system. Under these conditions the choice of anesthetic must be made on generally understood and accepted principles, and it should always be borne in mind that in operations on the kidneys of patients suffering from chronic nephritis the danger is, broadly speaking, greater from the anesthesia than from the operation.

ADDITIONAL OPERATIONS

A number of operations additional to the kidney operations were performed by me on a certain proportion of the 102 patients. The additional operations, although many of them were of a severe character, were attended with no mortality. In some instances the kidney and the additional operation or operations were performed at the same sitting; in some the additional operation or operations either antedated or followed operation on the kidneys.

VARIETY OF NEPHRITIS AS ESTABLISHED AT OPERATION

Right and left chronic interstitial.....	31
Left chronic interstitial, right kidney normal.....	4
Right chronic interstitial, left kidney normal.....	1
Right and left chronic diffuse.....	34
Left chronic diffuse, right kidney normal.....	3
Right chronic interstitial, left chronic diffuse.....	6
Right and left chronic parenchymatous.....	16
Right chronic diffuse, left kidney not operated on....	1
Right chronic interstitial, left kidney not operated on..	6

The only difficulty in the classification of the variety of nephritis that presented itself was in the cases of three patients whose kidneys were decapsulated for the cure of puerperal convulsions. In these three cases a subacute parenchymatous nephritis was encountered. As there was much evidence, however, both from the condition of the kidneys and in one case from the history of the patient, that the subacute nephritis encountered at operation was but an exacerbation of a previously existing chronic nephritis, these cases have been classified under the head of chronic parenchymatous nephritis.

From the above classification it will be seen that one variety of nephritis may affect one kidney, and a second variety the other kidney of the same individual—right chronic interstitial and left chronic diffuse nephritis having been observed no less than six times.

UNILATERAL NEPHRITIS

Chronic nephritis affecting one kidney only was noted in a strikingly large proportion of the 102 cases. In 8 patients, in whom both kidneys were exposed at operation, one kidney was found healthy and the other diseased, the unilateral chronic nephritis being of the interstitial variety in 5, and of the diffuse variety in 3 cases. Of 7 patients in whom only one kidney was operated on, 4 were completely cured of their former chronic interstitial nephritis and have remained cured for periods of time varying between five and fourteen years; therefore, these 4 patients must either be regarded as having had a healthy kidney on the side not operated on, or, if it be assumed that the second kidney also was diseased at the time of operation, the decapsulation of one of a pair of diseased kidneys must be credited not alone with restoring the health of the kidney operated on, but of that of its fellow kidney as well. I incline to the former of these two explanations as the more probable. In 8 of the 102 cases, therefore, the chronic nephritis was proved beyond a reasonable doubt to be confined to one kidney, and that such was the case in at least 4 other patients; the final outcome makes extremely probable. These observations I am compelled to interpret as establishing beyond controversy the fact that chronic nephritis may be encountered as a unilateral affection in a hitherto unsuspected proportion of cases.

RENAL AND PERIRENAL CONDITIONS COMPLICATING THE CHRONIC NEPHRITIS

Polycystic degeneration of left kidney.....	3
Polycystic degeneration of right kidney.....	1
Bilateral pyelonephritis, with millary abscesses.....	2
Unilateral pyelonephritis, with millary abscesses.....	1
Left acute suppurative perinephritis.....	1
Right chronic perinephritis.....	5
Right and left chronic perinephritis.....	14

WOUND HEALING

Of the 205 lumbar incisions made in the 109 operations on these 102 patients, 200 healed by primary union throughout. The failure to obtain primary union in the remaining five incisions was due to the following causes:

One intractable patient infected both wounds by repeatedly tearing off all dressings.....	2
Breaking down of an acute perinephritis antedating operation	1
Suppuration of a deep perirenal hematoma.....	1
Slight leakage of urine from surface of kidney.....	1

In not a single case was the breaking down of the wound the result of infection introduced at operation.

ANALYSIS OF RESULTS

Of the 102 patients 10 died within two weeks following operation, 39 died at periods of time more or less remote from operation, 3 disappeared from observation after leaving the hospital, and 50 are known to be living.

OPERATIVE MORTALITY

The operative mortality may be stated as 9.8 per cent. In reality, however, as 7 patients were operated on twice, 109 operations were performed on one or both kidneys. One of these patients died after a second decapsulation. Figured in this way, there were 11 deaths in 109 renal decapsulations for chronic Bright's disease, an operative mortality of 10.1 per cent. In round numbers, therefore, my operative mortality was 10 per cent.

This 10 per cent. mortality is fairly attributable to the disease itself and to its complications rather than to the operation. Bilateral renal decapsulation could be performed by an expert in renal surgery on 100 perfectly healthy human beings without losing a single life. In judging my own mortality, the fact must be taken into consideration that for one reason or another I accepted for operation cases in which the fatal outcome was almost a foregone conclusion. Patients, as well as their physicians (the two sometimes represented in the same person), insisted that they were entitled to the benefit of the doubt, and requested or even demanded operation.

Six of the operative deaths occurred in the first 40, 5 in the last 69 operations. All of the 10 patients who died within fifteen days following operation were males. The average age of the 10 patients was 45 years and 6 months.

The average duration of chronic nephritis prior to operation in these 10 patients, as indicated by the symptoms, was 4 years 11.6 months; as known from urinalysis, 3 years 1.7 months.

Decapsulation of both kidneys at one sitting was performed on each of these 10 patients.

Of the 10 patients, 7 suffered from chronic interstitial nephritis, 2 from chronic diffuse nephritis, and one from chronic parenchymatous nephritis, the disease in every instance being bilateral.

The cause of death was acute dilatation of the heart in 4 cases, uremia in 3, cerebral hemorrhage and uremia in 1, acute dilatation of the heart and edema of the lungs in 1, and acute lobar pneumonia in 1.

LATER DEATHS

Thirty-nine patients died at periods of time more or less remote from operation and from causes in no wise connected with the operation; of these 26 were males and 13 females.

The average age of the 39 patients at the time of operation was 41 years and 10 months.

The average duration of chronic nephritis prior to operation in these 39 patients, as indicated by the symptoms, was 4

years 7.3 months; as known by urinalysis, 2 years 7 months.

Decapsulation of both kidneys was performed on 24 of these patients; decapsulation and fixation of both kidneys on 2; decapsulation of both kidneys with fixation of the right on 1; decapsulation and fixation of the right kidney on 1; decapsulation of the right kidney and removal of the left on 1.

Of the 39 patients, 17 suffered from right and left chronic interstitial nephritis; 1 from right chronic interstitial nephritis; 3 from right chronic interstitial and left chronic diffuse nephritis; 8 from right and left chronic diffuse nephritis; 2 from left chronic diffuse nephritis; 1 from right chronic diffuse nephritis, and 7 from right and left chronic parenchymatous nephritis.

Wound healing was by primary union throughout in each of the 77 incisions made on these 39 patients.

Of the 39 patients, 1 died as the result of abdominal hysterectomy eight years after her kidney operation: 1 died of an operation for ruptured tubal pregnancy one year after operation on her kidneys; 1 died of septic pneumonia due to suppurative coxitis; 1 died of chronic pleuropneumonia; 1 died of gangrene of the tonsils and palate following grip; 1 died of cerebral embolism in the course of grip; 1 died of heart failure and uremia in the course of grip; 3 died of cerebral hemorrhage; 1 died of suppurative pyelonephritis; 4 died of edema of the lungs; 1 died of endocarditis; 2 died of valvular disease of the heart; 4 died of acute dilatation of the heart; 1 died of diabetic gangrene of the lower extremities, and 16 died of uremia.

Of these 39 later deaths, 10 were due to causes that stood in no direct relation to chronic nephritis—2, for instance, died of diabetes. Three other patients succumbed to grip. Including these last 3 cases, 29 of the 39 later deaths may fairly be ascribed to chronic nephritis and to its sequelae and complications.

The longest period of time between operation and death was eight years; the shortest, fifteen days. The average duration of life after operation was 1 year 4 months and 20 days.

In these 39 patients, 11 received no benefit from the operation; in 1, the possible benefit from operation was prevented by suppurative coxitis; the complications of the advanced stages of chronic Bright's disease nullified the benefits of operation in the remaining 10.

Four experienced slight and temporary improvement only. A peculiar feature of this temporary improvement consisted in the fact that the patient's general health and well-being were decidedly improved, so much so that three of the four who were bedridden for months preceding operation were able to return to work and to remain at work until within a very short time before death. This improvement in general health, however, was not accompanied by any improvement in the condition of the kidneys. Albumin and casts continued in the same or even greater abundance than before operation. The daily output of urea, however, was always greater than before operation, and the consequent lessening of uremia probably explains the improvement in general health and well-being. In other words, the functional activity of the kidneys was temporarily improved by decapsulation, although the fatal organic changes continued unchecked.

Eight patients experienced moderate improvement, the average duration of such improvement amounting to 1 year and 10 months.

Sixteen patients experienced decided improvement, lasting in 3 cases until death from causes other than chronic nephritis. The average duration of decided improvement for these 16 cases was 1 year and 2 months.

THE SURVIVORS

There are 53 survivors. The youngest was 4 years and 7 months, and the oldest was 67 years of age at the time of operation. The average age of the 53 survivors at the time of operation was 38 years and 11 months. An average period of fully five years for each of the survivors has elapsed since operation, making the average age of the survivors at the present time (September, 1907) 43 years and 11 months.

The average duration of chronic nephritis in the 53 survivors, as judged from the history and symptoms, was 3 years

6.9 months. The average period before operation at which albumin and casts were first discovered in the urine was 3 years 1.2 months.

The following operations were performed on the 53 survivors:

Decapsulation of both kidneys.....	25
Decapsulation and fixation of both kidneys.....	17
Decapsulation of both kidneys and fixation of right kidney	3
Decapsulation and fixation of right kidney.....	6
Decapsulation of right kidney and left nephrectomy..	2

The 53 survivors had, and a number of them still have, the following varieties of nephritis:

Right and left chronic interstitial.....	7
Left chronic interstitial, right kidney normal.....	4
Right and left chronic diffuse.....	24
Left chronic diffuse, right kidney normal.....	1
Left chronic diffuse, right chronic interstitial.....	3
Right and left chronic parenchymatous.....	8
Right chronic interstitial, left kidney not operated on..	6

The first of the 53 was operated on 14 years and 10 months ago; and the last, 1 year and 3 months ago. The average length of time since operation is a little over five years for each.

The histories of these 53 patients have been followed in all but three instances since the time of operation. In the three cases alluded to the final result is unknown. The life history of each of the remaining 50 has been obtained and recorded, and the final results to date of the 53 patients may be stated in a general way as follows:

Final result unknown.....	3
Unimproved, or but little improved.....	6
Improved	11
Cured	33

Before proceeding to an analysis of this list, it is but fair to state that the results are in reality a little better than indicated by the above figures. Thus, of 2 patients who died after operations performed by other surgeons one year and eight years respectively, following renal decapsulation, there is reason to believe that one was cured, while the other was certainly improved. Both of these patients now figure in the list of later deaths, instead of appearing among the survivors. There is also very little doubt in my mind that the number of cured patients will in the near future be increased by a few accessions from those now classed as improved.

Of the 6 survivors recorded as unimproved, only 1 has really experienced no amelioration of any kind. The other 5 all experienced improvement in either general health or in the urine, or in both. All of the 5, however, are at present in better health than before the operation. In 2 of the 5 an associated pulmonary tuberculosis precludes all hope of further betterment.

Of the 11 cases classed as improved, both the general health and the condition of the urine show steady and progressive improvement, continuous from the date of operation to the present day; 3 of the 11 appear to be on the eve of restoration to complete health, their general condition being good and their urine almost normal.

Finally, 33 patients have been completely cured of their former chronic nephritis as a result of the operation performed on their kidneys. In every case the urine has become normal at varying periods of time following the operation and, with the exception of four patients whose urine was found normal for the first time within a few months of this report, has remained normal for a period of six months and upward. These patients, with the four exceptions mentioned, have, therefore, fully met the requirements necessary to entitle them to be regarded as cured. These requirements are: "The urine must remain free from albumin and casts, and the daily urea output be normal, or approximately so, for a period of at least six months following the verification of the disappearance of albumin and casts, and the patient must be free from the symptoms of chronic Bright's disease from which he or she formerly suffered."

It should be added that the vast majority of my patients received no further treatment of any kind for their chronic nephritis after operation; they were not even subjected to the

usual restrictions of diet. Whatever benefit they received, therefore, must be ascribed solely to the effects of renal decapsulation.

As already stated, the cure of chronic nephritis is only started by renal decapsulation, and the element of time is essential to obtain the full advantages of the operation. In some patients the health of the kidneys was restored in a few months after operation, while in others the same result was reached only after a period of three years.

To prove that cure or improvement of chronic nephritis after renal decapsulation is due to the operation, it must be shown: First, that cure or improvement follows operation with practical uniformity; second, that improvement obtained by operation is steadily progressive in the majority of cases; third, that a cure once obtained is, as a rule, lasting. The first of these conditions has been fulfilled in 81 of the 102 patients; the second in an equal number, 48 of the number progressing steadily up to a certain point, varying with each case, but falling short of complete cure. That some of the 48 will eventually reach complete health I am very confident. This confidence is based on further experience and developments in connection with the "survivors" of my report of 1904. Of the 53 survivors in this report, the 17 who were classed in 1904 as cured are all alive and perfectly well at the present day; while of the 20 patients who were classed as improved, 4 have attained perfect health and now appear in the list of cures.

The third condition, that a cure once obtained must, as a rule, be lasting, has thus far been fulfilled to the extent to be detailed later on by every one of the 33 patients.

Fifteen of the women on the cured list were married at the time of operation; 4 have married since operation; 2 women have given birth to one child each since operation; a third woman has gone through two pregnancies, giving birth to three children. The five children are alive and well. The mothers suffered no kidney disturbance of any kind during pregnancy or since, and are to-day in the enjoyment of perfect health.

SUMMARY OF DATA RELATING TO CURED PATIENTS

These number 33—4 men, 28 women and 1 female child. The youngest cured patient was 4½ years old at the time of operation; the oldest, 67 years. The average age of the cured at the time of operation was 33 years. Five years, on an average, having elapsed since operation, the present average age of the cured is 38 years.

The average duration of chronic nephritis before operation was 2 years and 8 months for each of the 33 patients; comparison with the average duration before operation of 4 years for the total number of 102 patients; 4 years 11.6 months for the 10 patients who died within two weeks following operation; 4 years 7.3 months for the 39 later deaths; and 3 years 6.9 months for the 53 survivors, speaks louder than words for early operation.

The varieties of chronic nephritis of which these 33 patients were cured were as follows:

Right and left interstitial.....	5
Right interstitial, left kidney not operated on.....	4
Left interstitial, right kidney normal.....	4
Right and left diffuse.....	11
Left diffuse, right kidney normal.....	1
Right and left parenchymatous.....	6
Right interstitial, left diffuse.....	2

In 13 cases, therefore, the chronic nephritis was interstitial; in 12 diffuse; in 6 parenchymatous, and in 2 interstitial on the right side and diffuse on the left.

The shortest time between operation and cure was one month; the longest, 3 years; 18 patients recovered full health in less than a year after operation; 10 required between 1 and 2 years; 4 did not attain full health until between 2 and 3 years after operation; and in one case fully 3 years elapsed between operation and cure. The average time after operation at which full health of the kidneys was reached was 11 months for each of the 33 patients.

Deducting 11 months, the average time after operation at which the urine became normal, from 5 years, the average time since operation, gives an average period of health of 4

years and 1 month thus far gained for each of the 33 patients.

In the 33 cured patients, the average duration of chronic nephritis was 1 year and 10 months for each of the 13 interstitial cases; 3 years and 5 months for the 12 diffuse cases; 1 year and 1 month for the 6 parenchymatous cases; and 2 years for the 2 right interstitial and left diffuse cases.

The average length of time after operation at which the urine became normal was 6 months for the interstitial cases; 1 year and 2 months for the parenchymatous cases; and 8 months for the right interstitial and left diffuse cases.

SUMMARY OF RESULTS AND REMARKS

The results obtained in my first 102 decapsulations of the kidneys for chronic Bright's disease have been detailed fully, frankly and without reservation.

In the first place, renal decapsulation for chronic Bright's disease may be charged with 10 deaths following the operation. Let us admit for the sake of argument that these 10 deaths were all due to operation—a matter by no means settled, as practically every one of the 10 patients was within a few weeks, if not days, of the natural termination of life by disease. These 10 deaths as a result of operation are fully offset by an equal or larger number of patients snatched from impending death by operation. At least 12 others of my patients, who were considered at death's door when I operated, have had months and years added to their lives by the operation, and a number of the 12 are alive and well to-day. The sum total of life added as a result of operation in these 12 cases very far exceeds the curtailment of life which the operation may have caused in the 10 patients who died soon after, as a result of operation. The added years of life, in addition, were for the greater part years of comparative health, comfort and usefulness, as compared with the days or weeks of suffering which, had operation not been performed, would have been the lot of the 10 unfortunates who died.

To put it another way: Of 22 sufferers from chronic nephritis who came to me for operation, and whose deaths were immediately imminent by virtue of the disease, 12 were saved by operation, while in 10 the attempt to save life failed.

Of the 39 remote deaths none were due to operation. Twenty-nine of the 39 patients ultimately died of chronic nephritis or its complications. Of these only 11 received no appreciable benefit from operation. The worst that can be charged against operation in these 11 cases is that the operation did no good; it certainly did no harm. Eighteen of the 29, as well as the 10 patients who finally died of causes other than chronic nephritis, were all more or less benefited by the operation, the duration of improvement experienced by these 28 patients amounting to a total of more than 33 years.

Of the surviving patients, even the 6 classed by me as unimproved have experienced such marked benefit in general health that, personally, each of the 6 is abundantly satisfied with the results of operation.

Next, of the 11 patients who have all experienced decided improvement in general health and in the condition of the urine as the result of operation, a number appear to be on the high road to complete health, and bid fair later on to augment the list of cures.

Finally we reach the 33 cures of chronic Bright's disease attained as a result of operation. These 33 cures alone would justify all the work that has been done, even if no benefit had accrued to the remainder of

my patients. The justification, in my opinion, will still hold good, even if some of the cases now classed as cured should relapse, or in the future become the victims of a new nephritis.

Of the entire 102 patients, therefore, 21 received no benefit from operation, while 81 patients experienced amelioration varying all the way from slight and temporary improvement to complete cure. In 12 cases the operation proved directly life-saving by rescuing the patient from impending death.

In judging the above results, the fact should be borne in mind that the immense majority of my patients came for operation only after all other measures and treatment had failed to arrest the progress of their chronic nephritis. A great number were on the very eve of dissolution, and the desperate character of my series of 102 cases will probably not be duplicated by any surgeon in the future. Better results than those recorded here will undoubtedly be obtained as soon as sufferers from chronic nephritis seek relief and cure in early operation.

In the meanwhile, these results, 33 cures among 99 patients whose ultimate fate is known—obtained in a hitherto incurable malady, and one which, according to the United States census of 1900, ranks sixth in the list of diseases causing death, not alone justify the surgical treatment of chronic Bright's disease, but establish that treatment as at present the main if not the only hope of a very large class of sufferers.

For the present, in view of the helplessness of medicine in the presence of established chronic Bright's disease, the advance in treatment represented by renal decapsulation should be welcomed by every physician called upon to treat chronic nephritis. Nor is the physician justified in taking the position that only after all other measures have failed will he resort to decapsulation. That is giving neither the operation nor his patient a fair chance, to which the latter at least is certainly entitled. For even at present I am able to affirm, as the result of experience, that renal decapsulation applied early in the course of a chronic nephritis, and in the absence of complications, is almost free from danger in expert hands, and is almost a certain cure.

That physicians are not unwilling on occasion to try in their own persons methods of treatment which promise more than those heretofore known to medical science, seems indicated by the fact that of my 102 patients no less than 14 were physicians, and 5 others were members of the immediate families of physicians. One physician and his wife were both operated on during the same afternoon.

Much of what has been said in this paper rests upon the assumption that the curability of chronic Bright's disease by decapsulation of the kidneys is a proved fact. Regarding it as such, I feel that my expectation and hopes of years ago have been in large measure realized, and that the promise of a yet fuller realization appears bright.

12 West Fiftieth Street.

The Dark Ages of Tuberculosis to End. I have lived through many of the long, dark years of ignorance, hopelessness and apathy. . . . But I have lived also to see the dawn of the new knowledge, to see the fall of the death rate of tuberculosis, to see hundreds who have been rescued, to see whole communities growing up of men and women whose lives have been saved and who are engaged in saving the lives of others.—Dr. E. L. Trudeau.

THE SUTURE: ITS PLACE IN SURGERY.*

HENRY O. MARCY, M.D.

BOSTON

The history of the ligature and the suture is, in a measure, the exponent of the history of surgery. Surgery may also be accepted as a fair exponent of the rise, fall and progress of civilization.

PREHISTORIC SURGERY

Always prominent in the very dim and shadowy past, two of the professions, with which the third is more or less intimately blended, come into bold relief. In the differentiation of duties, even in the tribal relations, there was set apart a liberal representation of the brighter intellects for determining the relation of man to his brother and to that which all men have believed more or less clearly, the possible after-life. The rules of living determined by these men assume more or less formal expression in the codes of laws of the state and the church. The physical needs of mankind became at once apparent, and these were ministered unto, in differentiation from either spiritual or political needs by the so-called medicine-men of the savage tribes and priests and soothsayers of the barbaric ages. The need for the care of wounds and injuries produced a class of those especially trained, who have been denominated surgeons.

GREEK AND ROMAN SURGERY

Homer clearly portrays the active, beneficent service of the military surgeon. The fragmentary history of the Egyptian and Assyrian civilizations clearly teaches the honorable part assigned to his service. Pompeii, although a suburban city, has yielded abundant evidence of the surgeon's art in both war and peace. Pompeian frescoes portray his service. The instruments which he used are seen to-day in the great museum at Naples in considerable variety. This is as would be expected, since the mental processes act ever in the same accord, and a recognized need stimulates the meeting of the demand.

Roman civilization reached the climax of development in the early centuries of the Christian era, but, as in the case of Egypt, Assyria and Greece, unfortunately, many most important questions in regard to the development of the arts and sciences can at the best be only partially answered, since the storehouses of the most precious knowledge of the Romans were destroyed with the downfall of their civilization. We know, however, that even to-day we may learn much from the civil code and military regulations which dominated Rome's highest development. In both the civil and the military service the surgical profession was honored and the service rendered was of most signal value.

ANCIENT USE OF THE LIGATURE

The ligature played an important part in the armamentarium of Roman surgeons.

Celsus, living in the first century, one of the most remarkable of the Roman surgeons, gives special directions as to the use of sutures in a great variety of surgical affections. In illustration may be cited the pene-

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908. Because of lack of space the article is here abbreviated by the omission of a history of sutures, but the complete article appears in the Transactions of the Section and in the author's reprints.

tration of the sac in the umbilical hernia of children with a needle armed with a double thread, the ligation being made on either side by close knots. Celsus described the ligature as of ancient origin and stated that it was used by the Alexandrian school of medicine, with the teachings of which he was apparently familiar.

Galen (131-201 A. D.) tied arteries on living subjects and experimented on animals to show the circulation of the blood. He foreshadowed the discoveries of Harvey and demonstrated by the double ligature of the artery on living animals that the artery contained blood and not air. For a variety of surgical purposes he ligatured arteries in continuity, but not in amputations.

AMBROSE PARÉ

Ambrose Paré was born in 1517. In 1552 he first tied the vessels of the leg in amputation. This brilliant man was then a surgeon in the army at the beginning of his notable career. Like many other notable discoveries, this was born of the inspiration of the moment. A prominent member of his own staff was severely wounded in the leg and Paré writes: "I had to finish the cutting of it off, which I did without applying hot irons."

One is almost tempted to stray from the subject of this paper in his sympathy for the great innovator, who, like many since his day, struggled against conservatism. It would be interesting to outline the battle royal which Paré fought to establish the principle and practice of the ligation of arteries in amputations.

Paré's one monumental contribution to surgery, his great book, lies open before me as I write. My copy, bearing date 1582, is in its original binding of calf, once held together by clasps. On the fly-leaf are the autographs of distinguished previous owners, and although in good preservation, its pages bear evidence of frequent use.

Paré's later life was crowned with many honors. He writes:

God is my witness, and men are not ignorant of it, that I have labored more than forty years to throw light on the art of surgery and bring it to perfection, and in this labor I have striven so hard to attain my end that the ancients have nought to excel us save the discovery of first principles; and posterity will not be able to surpass us (be it said without offense) save by some additions such as are easily made to things already discovered.

PARÉ'S INTRODUCTION OF THE LIGATURE FOR ARTERIES

The fact that Paré did succeed in establishing on a firm basis the innovation of tying wounded arteries is far more noteworthy than would at first appear, since it also changed the mode of dressing of the wound. At this period gunshot wounds were treated with boiling oil, in the belief that the gunpowder in some way acted as a poison in the wound. It will be noted that the caustic effect of the boiling oil, although producing most agonizing suffering, caused the primary sterilization of the wound, and that there was an abundant leucocytic proliferation beneath the necrosed layer, which in a measure prevented subsequent infection.

VESALIUS AND HEISTER

Vesalius in the sixteenth century mentioned the ligature as a relic of the past, greatly underestimated in value because of the lack of anatomical knowledge.

Heister's Surgery was the text-book of continental Europe for two generations, and its study to-day will richly reward any student who would be the thorough master of his profession. In his last edition, 1739, he writes:

The necessary apparatus for dressings seems by no means complete without Ligatures; Chords, Bonds and Strings, and these of different sorts, some fine, others coarse, strong, made either of flax, or hemp, or cloth, or silk, or horsehair, according to the nature of the disorder; for these things are almost constantly required.

HUNTER'S LIGATION OF EXTERNAL CAROTID

In 1785 John Hunter tied the external carotid in a buck. The antler of the side became cold, and he debated of its future existence; later it was warm and well nourished. Two weeks after, he killed the animal and found the ligature in place and the artery occluded, but the collateral circulation was increased so that the nutrition of the antler was restored. This was the foundation study which led to his advocacy and practice of the ligation of arteries for the cure of aneurism.

Dr. Wright Post of New York, one of Hunter's students, in 1796 performed Hunter's operation, the ligation of the femoral artery in aneurism, and in 1813 he successfully ligated the external iliac, the second operation of its kind to be performed.

HAIRE'S MODIFICATION OF THE LIGATION

Mr. Haire of England,¹ in 1786, introduced the method of cutting off both ends of the ligature applied to the artery close to the knot and letting the wound heal over it. This method was practiced by a considerable number of surgeons, but very naturally fell into disuse, because it was decidedly the exception to have primary union, since the wounds, as a rule, became infected.

LIGATURE MATERIALS

Ligature materials, linen and hemp, were known and used for a great many purposes at a very remote period, antedating written history. Flax ready prepared for spinning has been found with the remains of the cave-dwellers of Europe. Silk was used in China for centuries before the Christian era. The beautiful fabrics of the far East were in use in Rome during the first century and were often sold for an equal weight in gold. Cotton was cultivated in Egypt during the period of its early civilization. The surgeons of the early periods were furnished with a variety of material for ligature almost equal to the present.

In the Odyssey the strings of the old Greek harp are described as made from the twisted intestines of sheep. It is extremely probable that these strings were manufactured as the catgut of to-day is, since it is the connective tissue sheath of the intestine only which could have furnished suitable material. The ancient Egyptian harp is said to have been strung with a similar material. The celebrated Arabian writer Rhazes, who practiced surgery in Bagdad A. D. 900, described the stitching of wounds of the abdomen with the strings of the harp, and Albucasis describes the stitching together of wounds of the bowel with a fine thread made from the twisted intestine of an animal.

INTRODUCTION OF ANIMAL LIGATURES

More recently, the animal ligature was introduced by Dr. Physick of Philadelphia, in the year 1806, but no account of his experience was published until 1816. The history of its uses is a most interesting chapter. The surgeons for a generation in America, and to a less degree in England as well, ligated arteries extensively with absorbable material.

1. Hennen, John: Principles of Military Surgery, ed. 2, p. 181.

HORATIO GATES JAMESON

The profession is indebted to the really monumental scientific studies of Dr. Horatio Gates Jameson of Baltimore, one of the leading surgeons of the period.² His experimental studies were in a very large measure duplicated by Lord Lister a generation later. There is abundant evidence that Dr. Jameson was a singularly clean surgeon. His basic studies were made on various animals, and nearly all the wounds were evidently uninfected, since primary union was decidedly the rule. I have been at large pains to follow in detail the history of this extraordinary man as a surgeon, and I judge from his reports that it was the exception that suppuration ensued in his operative wounds made in fairly well vitalized structures.

Few men did so much to give credit to early American surgery as Dr. Jameson, who, from 1820 to 1840, carried the fame of Baltimore as a seat of medical and surgical research to all parts of the civilized world. This truly great surgeon was born in York, Pa., in the year 1778. His father, David Jameson, also a physician, had a most interesting and adventurous career. A native of Scotland and graduated doctor of medicine at the University of Edinburgh, he emigrated to Charleston, S. C., in 1740. He was accompanied on the voyage by Dr. Hugh Mercer, who settled at Fredericksburg, Va., and became a brigadier-general in the Continental army, losing his life, as is well known, at the battle of Princeton, in 1777.

Dr. David Jameson removed from Charleston and settled at York, Pa. He died at Shippensburg, in the same state, about the close of the century. He was a lieutenant-colonel in the French and Indian war and was badly wounded during that period in an engagement with the Indians. During the revolution he was colonel of the third battalion of York County Association. In 1842 the son gave a charming description of his home at York, in a Baltimore periodical; also an account of his father's voyage across the Atlantic, describing, among its hardships, the short allowance of musty bread and foul water and the rusty salt beef doled out, yet consumed by crew and passengers with avidity.

Dr. H. G. Jameson studied medicine under his father and began practice in 1795, at the early age of seventeen.

During the war of 1812 he held the office of surgeon to the United States troops at Baltimore, for which service his widow received a pension after his death.

He was physician to the city jail for several years; from 1814 to 1835 he was surgeon to Baltimore hospital, and from 1821 to 1835 he was consulting physician to the board of health.

In 1830, on special invitation, he visited Europe, sailing by the packet running from Baltimore to Germany, and read before the medical section of the Society of German Naturalists and Physicians, which met in September of that year at Hamburg, a paper on the "Noncontagiousness of Yellow Fever." He was the only American delegate on this occasion and the first American to attend these meetings, and he felt deeply the honor of his position. His paper was read in translation at the meeting and was published on his return, in his journal. During his brief stay of two months in Europe he traveled through various European coun-

tries, staying longest at Copenhagen, to the American representative at which city he bore dispatches from our government at Washington.

In 1835, while on his return from Texas, where he had purchased lands, he received and accepted an offer of a chair in and the presidency of the Ohio Medical College, at Cincinnati. His colleagues there were Drs. Gross, Drake, Rivers and J. B. Rogers, the last his late colleague at Baltimore. He removed thither with his family in October, 1835, and lectured during the ensuing session.

During a visit to New York he was taken suddenly ill, and died, Aug. 24, 1855, aged 76 years. His remains were brought back to Baltimore cemetery, corner of Gay street and Boundary avenue.

NEGLECT OF ANIMAL LIGATURES

I have gone to some pains in tracing the history of the ligature, since, in the light of modern knowledge, it teaches the reasons for success or failure in the treatment of wounds, all dependent on the then unknown factor of infection. This, in a general way, was in a measure understood; but the key which seemed at one time to lead to success appeared again to be utterly lost in the learned dissertations on inflammation—a condition which seemed inevitable in the repair processes of wounds. Thus it came to pass that the animal ligature was discarded and forgotten.

LORD LISTER

Based on the monumental labors of Lord Lister, surgery has been brought to its present perfection by a contribution of scientific workers. We all point with pride equal to that of Paré and sometimes wonder what may be left to our successors for contribution of equal value. Lord Lister attained the end sought, but by means which now seem in large measure superfluous. He made and maintained a wound in an aseptic state, and in very large degree taught us the reason why. He was slow to discard the use of drainage, which seemed to him essential, and for a long period his sutures, although of catgut, were interrupted, taken through and through the parts to be united, but always to include the skin.

When I was his pupil in 1870 he pointed out to us—an observation which I am sure was original with him—the active cell proliferation in the deeper layer of the skin. He often showed us that the imbedded suture at this point was frequently nearly divided, when the portion in the deeper part of the wound showed little if any change. He also called attention to the developing colony of bacteria which usually penetrated only the superficial layers of the skin, the stitch abscess. In this way he in a measure foreshadowed the later contributions of great value which demonstrated that bacteria of certain varieties were normally present in the layers of the skin, especially in the sweat ducts and hair follicles. Here they undoubtedly play an important physiologic rôle in the proliferation and destruction of the dying exfoliating cells—an instance of rare temerity on the part of Nature, who harnesses into her service a most potent enemy, which in other relations may cause death. Here the *Micrococcus pyogenes albus* plays a rôle of importance, yet as a possible active enemy, equaled only in danger by that of the *Bacillus coli communis* transposed from within its normal habitat in the intestine.

2. A Brief Sketch of One of Baltimore's Greatest Men, Horatio Gates Jameson, M.D.: His Most Valuable Contribution to Surgery: The Occlusion of Arteries by the Buried Animal Ligature. Henry O. Marcy, M.D., Trans. Southern Surgical and Gynecological Assn., 1906.

REASONS FOR NEGLECT OF ANIMAL SUTURES

When we recall the multiplied experiences of a very considerable number of America's most distinguished surgeons with the use of the animal ligature, and the frequent publications on the subject extending over a quarter of a century and incorporated into a number of prominent text-books on the surgery of the time, we are confronted with two important queries.

First, how could this method of the ligation of the arteries so soon have fallen into disuse?

Second, how was it possible that a subsequent generation could have been so absolutely ignorant of such a wide experience published and republished in both America and England?

The first question is easy to answer. Wound infection was the rule, and when infection occurred the selection of ligature material was a choice of evils. The silk ligature, with one end cut off and the other to serve as a drain, was generally adopted. To Lord Lister is undoubtedly due the honor of having reintroduced the animal ligature into surgical practice—on an entirely different basis, however, since he was the first to show that wound inflammations were caused by the introduction of something from without which acted as a ferment, and that that something consisted of very minute organisms of a low order, which reproduced and which were the cause of the so-called wound inflammations. This having been made clear and the demonstration ample that necrosed tissues in subcutaneous wounds were absorbed, it followed as a sequence that animal tissues applied about an artery in the form of a ligature might also be carefully disposed of by absorption, and hence we find, under a new stimulus and with a new reason, Lord Lister paralleled the experimental studies of Dr. Jameson, of which he was ignorant.

LISTER'S EARLY TEACHINGS

Early in 1870 I had the good fortune to become the first American pupil in Edinburgh of Mr. Lister, afterward Lord Lister. He was then comparatively unknown. I sought to profit by the instruction of the famous Professor Syme and thus learned that Mr. Lister had married the daughter of Professor Syme. This distinguished man died during my residence in Edinburgh. I was warned not to make the acquaintance of Mr. Lister, since he was considered an enthusiastic believer in a surgical heresy. Men who should have been his best supporters in the university would not recognize him.

I thought I knew surgery. I had had a large experience as a surgeon and medical director in the Civil War. For some years I had been a postgraduate student and instructor in Harvard Medical College. For the previous year I had been a student in Berlin under the celebrated professors Virchow, Martin and Lagenbeck. Here was a comparatively young, obscure Scotchman, who demonstrated to me daily that severe wounds might be made with impunity in almost any part of the body, and compound fractures recover without inflammation with the same safety as simple ones. I shall never forget my first morning with Mr. Lister in the old Edinburgh infirmary, where he showed me three resections of the elbow joint in children, in which the repair processes were going on without edema, pain or fever. Arteries were ligated with seeming impunity, and even the knee joint, hitherto the dread of all surgeons, was opened with safety. Fortunately my knowledge of surgery was sufficient to teach me the value

of these new demonstrations, and with notebook in hand I followed the master with daily increasing admiration and profit.

It is true that we now look on many of Mr. Lister's early procedures as cumbersome and unnecessary. Results, however, furnish the criterion of success. In these he was not wanting. The carbolic acid incorporated in the lac-plaster as a wound dressing was soon discarded. The carbolic spray, for good reason, was discontinued. The spray came near being the ruin of Mr. Lister's reputation and wrecking of the whole system of antiseptic surgery. This was made the most of by Mr. Lister's personal opponents, who would see in it the only contribution that Mr. Lister had attempted to make to surgery, purposely ignoring the scientific principles on which he sought to base the new teaching and that the spray was simply recognized as a means to the end of preventing infection during the operation.

"Away with the spray," said his rivals in London, who looked on his advent there only with a jealous eye. "Fort mit dem Spray," echoed his German adversaries, who at the time accepted grudgingly any contribution from France or England. American critics took up the refrain, and the new teaching can hardly be said to have been established in a general way until after the International Medical Congress in London in 1881. Here was fought the battle royal, an occasion which those of us who participated will never forget.

Drainage and abundant absorbable dressings lasted longer and are still in use by some surgeons, even in aseptic wounds. They may be accepted as a *sine qua non* in infected wounds. One reason why Mr. Lister for so long a period insisted on drainage and absorbable dressings was his fear that the serous effusion was too abundant to be absorbed or become vitalized. A second and perhaps equally important reason was that he closed his wounds by interrupted sutures and looked on the possibility of an infection traversing the line of the suture. It does not appear to have occurred to him at this early period that sutures could safely be buried even in well-vitalized structures.

AUTHOR'S EARLY USE OF BURIED ANIMAL SUTURES

On Feb. 19, 1871, in consultation with Dr. A. P. Clarke of Cambridge, I operated on a patient, Mrs. M., aged 50, who had suffered for years from hernia. Five days previous she was seized with severe pain in the inguinal region, accompanied by vomiting. Long-continued and careful taxis had failed to reduce the hernia, and for twenty-four hours the vomiting had been stercoraceous, and the patient seemed in *extremis*. The hernia tumor was the size of an egg, protruding from the external inguinal ring. A careful dissection exposed the sac, which was closely adherent to the surrounding parts. The constriction was at the internal ring and was divided with some difficulty. The hernial contents were reduced, and the sac, unopened, was returned within the ring. Two stitches of medium-sized catgut were taken directly through the deeper structures about the ring. The wound was dressed antiseptically, and from Dr. Clark's notes, taken at the time, I find that the patient steadily progressed without pain or accident and was convalescent in three weeks. The result was a radical cure of the hernia, although the canal was not closed for this purpose. The opening into the abdomen was so large that we feared the escape of the contents, especially as the patient was afflicted with a severe chronic bronchitis. I only expected the

sutures to hold the parts *in situ* temporarily. Mrs. M. died six years after the operation, and was troubled with the cough during the entire period, but the canal remained firmly closed at her death. She did not wear a truss after the operation.

On March 10, 1871, assisted by Dr. W. W. Wellington of Cambridge, I operated on Mrs. L., aged 45, suffering with strangulated hernia, usually retained by a truss. It was on the left side and direct inguinal in variety. The sac was returned unopened; the canal was closed by three large sized catgut sutures, taken deeply through the pillars of the ring, and the wound carefully dressed antiseptically with Lister's carbolized lac-plaster. When examined the following June, the cicatrix was linear, and a firm deposit of new tissue could be felt, marking the site of the buried sutures. I reported these cases at the meeting of the County Medical Society, Oct. 11, 1871, and published⁷ a paper discussing the subject, Nov. 16, 1871. In closing I remarked:

As far as my observation has extended, this is a new use of the carbolized catgut ligature and suggests a still wider field of application. No method of operation for the radical cure of hernia appears more feasible, is probably attended with less danger, and at the same time affords a means of closing and strengthening the weakened ring, which is so desirable, and yet, with all the ingenious devices of surgery, is so difficult to obtain.

Although I continued to operate from time to time, as occasion demanded, in cases of strangulated hernia, and in every case closed the ring with buried animal sutures, it was not until Feb. 4, 1878, that I deliberately attempted the radical cure of a reducible hernia. This patient I had some time previously (Dec. 2, 1877) cured of a large, old irreducible omental hernia of the right side, which had become complicated by the descent of a strangulated loop of intestine. In this instance I dissected the sac and carefully closed the ring and structures of the abdominal wall. A truss retained imperfectly a large direct inguinal hernia on the left side, for which Mrs. W. besought cure, although she was 70 years of age. In the operation I was assisted by Dr. A. L. Norris of Cambridge, who cheerfully gave his approval. In this I was the more fortunate, since until that time my advocacy of operative measures for the cure of hernia in non-strangulated cases had been considered unjustifiable.

The above described experiences paved the way for my application of buried sutures in a great variety of wounds. They were, however, based on a long series of experimental studies in animals, in which I was ably assisted by the late surgeon general, Dr. A. P. Holt, and my laboratory assistant, Dr. S. N. Nelson. These researches were from time to time published in extenso.⁸ It was clearly demonstrated that the catgut was first surrounded by leucocytes, invaded by them, and that, *rari passu*, new connective tissue cells in large degree replaced the suture material, leaving a living band of well vitalized structure, which in a measure reinforced the coapted parts. Later these demonstrations and deductions were amply verified by the splendid research work of Ballance and Edwards.

INFECTION FROM CATGUT SUTURE

Up to this time I had been singularly fortunate in not having a single case of wound infection traceable to the catgut suture material. I had personally prepared it after the formula advised by Mr. Lister.

In the pressure of a large general hospital practice my supply of catgut gave out. I obtained catgut from a reputable English house and at once had a series of wound infections of a most serious character. In three major operations, one patient died from infection and the others made a slow and imperfect recovery. Bacteriologic study showed that this catgut contained staphylococci. The fruitage of this unfortunate experience caused me to determine that catgut was in itself naturally defective as a suture material and not easy of sterilization. I found that the catgut of commerce was manufactured, briefly, as follows:

The small intestine of the sheep is permitted to undergo a process of decomposition until the more resisting connective tissue sheath can be separated as a firm, white fibrous cylinder, not unlike the sausage-skin of the butcher. This connective tissue sheath is necessarily infected by bacteria in considerable variety. It is split longitudinally into different widths, stretched, twisted and dried.

The violin-string of commerce, as every one knows, in its dry state is remarkably strong; and yet there is a yielding of its fiber sufficient to demand repeated increased tension, or tuning, in order to secure the requisite musical tone. A study of the histologic elements of the connective tissue sheath of the intestine in animals makes it perfectly apparent why catgut necessarily falls far short of the ideal material for sutures. The ultimate fibers are disposed in oblique rather than parallel lines, obviously to permit the easy distension of the viscus. Otherwise the intestinal canal could not easily accommodate itself to its contents. The longitudinal splitting of the sheath of the intestine necessarily cuts these fibers at an angle, leaving a resulting product not unlike that produced by the dividing of a very delicate silk gauze on the bias. Any attempt to twist an oblique section of silk gauze into a cord results in a weak and most unsatisfactory product. The difference between the twisted silk fabric and the twisted catgut lies in the fact that the cement substance, collagen, holds the connective tissue fibers in a much closer union. This, however, is subject to an easy absorption of water and gives in the undried ribbon of the intestinal sheath a soft, flat, slippery, elastic product unsuited to any constriction purposes. Immerse catgut for a short period in any watery solution and note its changes. It first becomes swollen, and this is the reason why the catgut suture is threaded through the needle with difficulty. After a long immersion it can be untwisted, leaving as result the more or less softened, flattened band. This is why the knot of a catgut ligature is untrustworthy. The fault is inherent in the material, not in the surgeon. As a crucial experiment, select a beautiful coil of catgut, use it as a fish-line and note the results. Then remember that the buried suture material is immersed in the fluids of the body and must of necessity undergo a process of maceration.

The experience of these many years has shown that although catgut can unquestionably be sterilized, the process is by no means an easy or satisfactory one. The cement substances holding the connective tissue fibers

7. A New Use of Carbolyzed Catgut Sutures, Boston Med. and Surg. Jour., viii, 316.

8. Radical Cure of Hernia by the Antiseptic Use of the Carbolyzed Catgut Ligature, Tr. A. M. A., 1878, p. 295; Animal Ligatures, Ann. Anat. and Surg., 1881, 252; The Animal Ligature, New England Med. Month., June 15, 1883, 387; Surgical Advantages of the Buried Animal Suture, THE JOURNAL A. M. A., July 21, 1888, xl, 71; The Animal Suture; Its Place in Surgery, Am. Assn. Obst. and Gynec., 1889.

is necessarily damaged, first in the process of separation of the connective-tissue sheath from the other components of the intestine. This is still further damaged, as well as the fibers themselves, by nearly every process in use for sterilization. Influenced by these studies, I at once instituted an active search for better suture material. I then for the first time discovered the remarkable facts already narrated at some length, and found, to my astonishment, that for a generation animal ligatures, introduced by Dr. Physick, had been extensively used in America, all of which experience had been forgotten and lost. Of the very considerable variety of material used for ligatures it was clearly apparent that the tendons of animals were anatomically the best, since the fibers were parallel and they could be prepared with less injury to the cement substance in the ligation of arteries and had been used for the ligation of the pedicle of ovarian tumors by Dr. Bellenger of South Carolina in 1830 and later by Dr. Eve of Nashville, Tenn.

SEARCH FOR SUITABLE SUTURE MATERIAL

I found nothing suitable in the tissues of domestic animals; although a comparatively good ligature material was obtained from the tendons of the ox, it was rare to find fibers fitted for sutures. I knew that the Indian women of the northwest used tendons in place of thread for the sewing of their skins.

In the tents of the Dakotas I found willing teachers. The fascia lata of the buffalo was used for suture material, and this failing, that taken from the moose. From this source I obtained a fairly satisfactory product. The hind leg of the moose also furnished a fairly good material. The tendons from the crane and ostrich are of ample length. I obtained tendons from the tail of the whale four feet long, and large and strong enough to serve as ropes.

The peculiarity, however, of all these tendons is that the fibers interlace, an extremely wise provision for Nature's use, but not suited to the manufacture of fine thread. Dr. Simmons of South Carolina sent me tendons from the tail of the fox squirrel; and, for the first time, I learned that in this animal the disposition of the psoas muscle is different from that of any other animal I had then examined, in that each fasciculus of the muscle has its own separate tendon extending to the very extremity of the tail. In the squirrel they are extremely beautiful, not much larger than coarse hairs, but only six or seven inches long. My desire now was for larger squirrels. My late friend, Dr. Hunter McGuire of Richmond, furnished me the opossum for dissection. Here I found the same anatomical distribution as in the squirrel, but the tendons were still too short to serve for most suture material, although beautifully fine and even. The books on comparative anatomy were singularly oblivious on the peculiar anatomic distribution of the tendinous structures of the tails of animals, but at last I thought that I had found the key: Since the opossum was a marsupial, it was extremely probable that the construction of the tails of this entire group would be similar.

At this time I had under care a retired Australian merchant, from whom I sought instruction. His playful reply was that he knew that the tails of these animals made excellent soup, but as a personal favor he would have the subject investigated and have a report made me. In due time the answer came in a considerable bundle of tendons from the tail of the wallaby, a species of small

kangaroo. The problem at last seemed settled, and I have never since received finer specimens.

There is a considerable difference in the number, but each tail contains usually from twenty to thirty tendons. The smaller varieties of the animal furnish tendons in sizes of considerable variety, and but few of them too large for use. The anatomic disposition remains the same in the larger species, and specimens from these animals are not seldom three feet in length and strong enough to draw a carriage. Although there are few interlacing fibers in these tendons, and although when split with care they furnish much excellent suture material, they are never quite so even, sound, smooth or strong as whole tendons.

Their method of preservation is of importance. The tendons must be taken from freshly killed animals, kept straight, quickly dried and kept dry in shipment. As most surgeons know, the ultimate fibers of a tendon are parallel, overspacing each other in a uniform manner, are held together by a cement substance and constitute some of the strongest structures of the body. Carefully selected tendon sutures of equal weight are stronger than silver wire. Such strength, however, is of minor consideration, since great tension on sutures is seldom required.

PRESERVATION OF TENDON SUTURES

The processes of preparation of tendon sutures are not difficult. Good tendon is comparatively aseptic. The tendons are soaked in a one to a thousand corrosive sublimate solution until soft. They are then easily cleaned and separated and dried straight on wet, sterile towels. The further preparation consists in immersion in a weak solution of formaldehyd, about one part to two hundred of sterile water. They are then chromicized in the usual manner and dried. The tendons are then permanently put up in boiled linseed oil, to which has been added one-twentieth part of carbolic acid crystals.

It will be noted that this is not an important departure from the method first recommended by Mr. Lister. I have tried nearly every method advocated from time to time, besides many experimental studies of my own, but nothing has proved so satisfactory. When preserved in alcohol, after a time tendon and catgut become brittle. When kept dry the material depreciates in value and after a time becomes untrustworthy; on the contrary, preserved in the carbolized oil, I think the suture material is rather better after some months. I now have specimens of catgut prepared over thirty years ago which are satisfactory and trustworthy.

In regard to the preparation of catgut there is still much discussion, owing, as I think, in large degree to the inherent defects already referred to.

In order to prevent the putrefactive changes in the separation of the connective-tissue sheath of the intestine, the intestine from freshly killed animals has been utilized. The fibrous coat is separated in a comparatively aseptic state. This, of course, when properly done, is of great advantage. The sterilization is also effected before the twisting process takes place. Various antiseptics have been used to be incorporated in the sheath before the twisting, the most valuable of which are the silver salts, especially the iodid, and pyoktanin. It is asserted by the advocates of these processes that there is a manifest advantage from the incorporation of these antiseptics into the suture material to last

during the entire period of their usefulness within the tissues. There can be no doubt that these chemicals exercise a marked inhibitory power on the reproduction of bacteria, but it is safe to assume, without argument, that if no bacteria have been introduced into the wound, either by the suture material or by manipulative processes, there are no bacteria to inhibit, and therefore the use of these chemicals in such wounds is of very doubtful value. On the other hand, I do not believe, judging from my own experience, that they are particularly deleterious agents. Chemicals of any sort introduced into wounds can not of themselves be considered advantageous; yet most surgeons irrigate wounds with the sublimate solutions freely and for years it has been my daily habit to soak my tendon sutures in a warm, one to a thousand bichlorid of mercury solution, for a half hour before using. I have thought this advantageous in freeing the tendons from oil, which in a warm solution soon floats on top, while the softening of the sutures causes them to be more supple, and therefore more easy of application.

SUBCUTANEOUS SUTURES

The history of subcutaneous suturing is less satisfactory. It is now well known that the hair follicles and sweat ducts are the abiding places of bacteria and that the superficial epithelial layers of the cuticle are in a way freed for easy desquamation by the ever-present countless numbers of the *Micrococcus pyogenes albus*. Any of these bacteria drawn into the wound by improper suturing are favorably planted for colonization. The surgeon may very safely suture the deeper structures of an aseptic wound, accurately coapting like tissues. This should, of course, be done by continuous sewing and it must be remembered that undue constriction is to be avoided. One of the important maxims ever to be kept in mind, however, is coaptation and not constriction.

Subcutaneous suturing is more difficult. In the first place, the suture should be sufficiently fine and not chromicized, that its absorption may be assured before the normal process of skin growth brings it to the surface. The suture material itself is not exposed to invading bacteria. The stitches must penetrate only the very deeper layer of skin and must be taken from side to side so that each stitch enters exactly opposite the emergence of the preceding one. In this way by gentle traction the skin edges are brought into even coaptation, the last suture is fixed with a half knot and the needle emerges at some distance from the end of the incision. The wound is carefully dried and sealed with iodoform collodion. The ends of the suture are drawn on, cut short and allowed to retract beneath the skin. The iodoform has a distinct inhibitive power on the development of bacteria of the skin. In this way, wound treatment is reduced to its lowest terms of simplicity and safety. No drainage should ever be permitted in aseptic wounds in healthy structures. To this rule even the amputation of the thigh is no exception. An aseptic wound thus made and sealed must remain aseptic, and primary union will follow.

DISADVANTAGES OF METALLIC SUTURES

I have referred to the early use of wire which was reintroduced to the profession by Drs. Sims, Emmet and others. The work of Dr. Sims in establishing the cure of vesicovaginal fistula will ever remain a monumental contribution to surgery. I do not think that I have ever seen a more dextrous opera-

tor. He may justly be accredited as the founder of gynecic surgery. He attributed a large degree of his success in plastic surgery to the use of silver wire interrupted sutures. Following the teaching of this distinguished author metallic sutures soon became popular. Their superiority over linen or silk in septic wounds, then the rule, is self-evident. Metallic sutures may be buried and remain indefinitely in the tissues. As a rule, however, they are necessarily a source of irritation, being foreign bodies, and sooner or later must be removed.

PROPERTIES OF SILK SUTURES

Silk or linen suture material is easily made aseptic or antiseptic by heat, impregnation with iodid of silver, pyoktanin, etc. During the indefinite past, the instruction had been to wax well the ligature. The beeswax incorporated into the fiber rendered it not only smooth and less irritating, but, as we now know, lessened the liability of the ligature to become filled with bacteria. One of Mr. Lister's early experiments was the immersion of the silk in a hot bath of melted beeswax to which 10 per cent. of carbolic acid had been added. The superfluous wax was removed by repeated drawing of the suture material through a fold of cloth.

Silk as a buried suture has the advantage of being easily sterilized, and its strength permits the use of very fine thread, it being important to minimize the amount of unabsorbable material buried in the tissues. Silk in itself is an animal product and may be absorbed, but the absorption is such a decided exception that silk may be classed as an unabsorbable material. The evidence is so conclusive as not to admit of argument that silk ligatures, even when small, interrupted and cut close to the knot, are a frequent source of discomfort and suffering.

I have in my possession three loops of silk ligature with the following exceptional history: About three months prior to my operation the patient had had the ovaries and tubes removed by one of the leading New York surgeons. Primary union followed and she was discharged convalescent four weeks later. After a time she was seized with the most frightful torture from vesical irritation. There was an almost constant desire to urinate, never followed by relief. She had been kept almost constantly under the influence of morphin, although still in a state of extreme suffering. Under ether I dilated the urethra and removed three calculi the size of small cherries. Two were free in the bladder, but a third was still attached to the posterior wall of the bladder by a portion of the ligature. Each contained as the nucleus the interrupted silk suture unchanged, with the knot still remaining firm.

ADVANTAGES OF TENDON SUTURES

Although there are surgeons who still use silk as a buried suture, the number is far less than formerly. One of the more prominent New York hospital surgeons told me only recently that nearly all the New York surgeons used kangaroo tendon sutures almost exclusively.

METHOD OF SUTURING

If absorbable sutures are to be used, how may they best be applied? Coaptation and fixation, at rest, of like structures with as little force applied as possible, is the object sought. More suture material than is required for these purposes is detrimental. The suture must be applied with a minimum of devitalization of the tissues which are coapted. The interrupted suture

is faulty in that it holds at only the single point of application; and in order to make complete coaptation in large wounds, undue compression, often to the devitalization of the part constricted, must be used. Each stitch necessitates a knot.

The interrupted suture is the legacy of the fathers, and used by them distinctly with the purpose of removal. In order to relieve the tension of the exudation of fluids, a stitch was cut from time to time as thought desirable.

If the wound remains aseptic, primary union will supervene, and the stitches taken through the skin for the purpose of removal have no advantage in being single. Thus taken, the interrupted stitches coaptate far less evenly and securely the included tissues, and require much more time to apply them than do continuous stitches. If the seamstress or the tailor made our clothes in this manner, we should wonder at their bungling methods. The principle is precisely the same with the surgeon; and, even if he has to serve an apprenticeship to the tailor, he should certainly not be less dextrous, since Nature's most precious coat should be most artistically repaired.

Like structures, as far as possible, should be coapted; fascia to fascia, muscle to muscle. Fine continuous running sutures, taken rapidly, accomplish this purpose in a manner so as not to leave pockets for the accumulation of fluids. The accumulations as well as larger tendons applied in many layers, we know, if aseptic, will usually be cared for by Nature's processes, but it is a part of our art to minimize the burden, instead of making the effort to determine how much she can accomplish in this direction. The over-and-over suture, gloves' stitch, is undoubtedly the one in more common use, but it does not serve the purpose in the coaptation of wound structures nearly as well as the parallel stitch, in which the needle is inserted deep within the tissues parallel to the long axis of the wound, and each succeeding stitch is made by introducing the needle exactly opposite the emergence of the preceding one. In this way, on tension, coaptation is evenly secured, and the suture material crosses the incision at right angles and by this means the suture is completely buried in healthy, closely coaptated structures. Sometimes, for example, in the reconstruction of the inguinal canal, the closure of the peritoneum and the fascia, there is a decided advantage in sewing a double line of sutures, just as the shoemaker sews leather, the needle with eye near the point serving as a shuttle to carry the suture. It must, however, be remembered that much force is inadvisable, since coaptation, and not constriction, is the purpose.

In sewing, the needle is of importance as well as the suture, and the profession is greatly indebted to Hagadorn for his valuable addition to our armamentarium in this direction. The medium sizes of fully curved needles serve best, since they can usually be used by the fingers without the aid of forceps.

The continuous suture requires but a single knot, and is less liable to cause undue constriction than the interrupted suture, since a compensation occurs, equalizing the force applied to the entire suture. This I consider of the first importance, since under the influence of earlier teaching, most surgeons still use too much force. Injury and devitalization of the tissues is the consequence. The extraordinary strength of tendon is in a measure a fault, since its unyielding character admits easily of undue force.

The frequent inquiry is made for larger tendon, "since I must have it very strong." Some time ago one of Europe's most distinguished surgeons operated in my clinic. He would have only braided silk, and in its application broke all his sutures finer than No. 8. Such force must necessarily cause necrosis of all the enclosed structures.

All aseptic wounds closed with buried aseptic tendon sutures will remain aseptic and in well vitalized structures will be followed by primary union. There is no danger of subsequent infection, no expensive and troublesome dressings are required; the anxious forebodings of the surgeon "lest something go wrong with his wound" is avoided; no sutures are to be removed, relieving greatly the dread and anxiety of the patient; safety is greatly enhanced and the period of convalescence is shortened. When the work has been done with care the resultant cicatrix is scarcely visible, a matter of much importance in some portions of the body. Operations hitherto impossible have been rendered feasible by the use of buried absorbable sutures; for example, the reconstruction of the pelvic structures, the closing of rents in the peritoneum, etc. The reconstruction of the obliquity of the inguinal canal for the cure of hernia in the male has become an almost everyday occurrence. It was for this very purpose that I first used the buried animal suture in 1870, and am now in my five hundredth series of cases with over 90 per cent. of resultant cures. My operation under various names is now practiced in every part of the civilized world, for the cure of the female vesicovaginal and rectovaginal fistula. The reformed structures may be greatly strengthened by the rejoining of the sundered tissues by means of lines of buried sutures, as contrasted with a single layer of interrupted sutures, for example, the closure of the abdominal wall in laparotomy. Here, in the closure of the wound by a single line of interrupted sutures, about 10 per cent. of the cases result in hernia at the line of the incision. Not seldom an abdominal bandage is ordered to be worn for a year. This I consider worse than useless. When closed in layers, the composite structures are rejoined, and in primary union hernia should be altogether avoided. In over two thousand laparotomies of this character I have had but a single subsequent hernia. Indeed, this is but to be expected, since like structures are joined, and the suture itself is replaced by a living band of connective tissue. To-day the aim of the surgeon is to reconstruct and restore, as far as possible, to the normal pattern, all the healthy tissues remaining for manipulation. To this end a tumor is removed, and the parts completely closed, if possible. Although our mission is necessarily iconoclastic, the service should be rendered with such gentleness of measures that Nature accepts it as her best ally, and a double blessing follows the ministrations of the surgeon, not alone in the averting of the threatened danger, but also in the accomplishment of the same with the minimum of pain and suffering, and the maximum of safety. I consider the buried animal suture my best contribution to surgery.

With all the emphasis of an earnest conviction, I commend to every aseptic surgeon familiarization with the methods of wound closure by means of buried absorbable sutures, preferably tendon, and predict not only that they will receive early general adoption, but that, in importance, they will hold the first place in the technic of modern aseptic wound treatment.

180 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

DR. HARVEY P. JACK, Canisteo, N. Y.: Kocher, in his latest work, expresses wonder that so many of us continue to use absorbable sutures; he reports 100 cases of aseptic breaking-down of wounds. Catgut, chromicized or formalized, has been the only suture material that I have used since I began the practice of surgery. I will report one more case of aseptic breaking-down of the wound somewhat in detail, that you may be able to give some solution of the cause of breaking-down. The case was one of hysteromyomectomy; the time consumed was only thirty-five to forty-five minutes, and the wound was closed in layers by means of No. 2 chromic catgut, made by one of the best manufacturing houses in the United States. The patient did well for two weeks with normal temperature; then I was summoned to the hospital by the statement that the patient had vomited up her intestines. The wound had broken open and a large part of the small intestines was lying on the abdominal wall. I introduced three layers of sutures, using catgut for the buried sutures and re-enforcing that with silkworm gut. The woman made a perfect recovery and left the hospital three weeks from the time of entrance. The patient was pronouncedly gouty. Whether that had anything to do with the rupture of the catgut I do not know. She was also a neurasthenic, although she had been carefully prepared for the operation and re-enforced in every way. It was, however, with much difficulty that she was properly nourished. But the catgut in the wound was absorbed almost entirely at the end of two weeks. Since that experience I have closed the peritoneum with silk. The suture material was thirty-day catgut.

DR. D. TOD GILLIAM, Columbus: For a good many years I have used absorbable sutures in my abdominal work, and up to six months ago I have used the method of closing the abdominal wound by overlapping the fascia as we do in the hernial cases. I used the chromicized gut and found that I was having a great many cases in which the wound would open—not down to the abdominal cavity, but the outer layers would open. There was no suppuration, but a secretion of serum, and it was due undoubtedly to the irritation of the unabsorbed catgut. I am sorry to say that by reason of this I have been obliged to come back to the old method of the silkworm suture, using the method known as the "figure-of-eight suture." It is not satisfactory to me in all respects, but I have had so much evil result from the chromicized gut that I have been obliged to return to this antique method.

DR. A. ERNEST GALLANT, New York: My experience shows that difficulty in the abdominal wound has often been due to my having tied a double knot in the suture material. While absorption of the suture takes place the knot remains as an irritant because of its consistency.

DR. HENRY O. MARCY, Boston: One who will carefully read the paper in *extenso* will find that the criticisms made and many others have been answered. In the case in which the No. 2 thirty-day catgut was used and the tissues broke down, I think that there was something wrong with the repair process and not with the catgut. You all know that two weeks will give carefully coapted structures time to unite. It is a good plan, with a long abdominal wall, to restrain muscular action. I put on a strip or two of adhesive plaster to hold the abdominal wall at rest. Well-selected kangaroo tendon will hold much longer than catgut. It is an important matter to have few knots and to put coapted structures at rest without there being any undue constriction—in other words, to immobilize the wound.

The Economic Cost of Tuberculosis.—The total cost in the United States exceeds \$1,100,000,000 per annum. Of this cost about two-fifths, or over \$440,000,000 per annum, falls on others than the consumptive. An effort to reduce the mortality by one-fourth would be worth, if necessary, an investment of \$5,500,000,000. The erection of isolation hospitals for incurables is probably the most profitable method at present of reducing the cost of tuberculosis.—FROF. IRVING FISHER.

Clinical Notes

DIPHTHERITIC CONJUNCTIVITIS

MARIANA BERTOLA, M.D.

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SAN FRANCISCO

This paper is not written from the standpoint of the specialist but from that of the general practitioner. It does not present anything new for consideration, but it calls attention to a condition which is more frequent than is commonly supposed.

FREQUENCY

Jacobi of New York says that about the year 1850 diphtheritic conjunctivitis was frequent and destructive. DeSchweinitz declared it rare in America and England and very prevalent in France and Germany. Since that period the number of cases reported has been less. In pre-antitoxin days Graefe reported three cases and three deaths; Gilbert, four; Widimark, one.

In 1904 Kooker reported eighty-one cases of diphtheria, in forty-seven of which diphtheritic conjunctivitis was present. In 1904 Juler also reported one case. In 1906-7 Bruns, having a splendid opportunity in the south, reported thirty-six cases. The *British Medical Journal*, the *Lancet*, and THE JOURNAL report no cases for 1906.

McCollom declares that the conjunctiva is rarely attacked by the Klebs-Loeffler bacillus. Of our local men, Dr. A. Barkan reports a small number of cases secondary to nasal diphtheria, also a number of cases of pseudo-diphtheritic conjunctivitis. Dr. W. B. Lewitt reports one "in which there was a distinct membrane at the inner angle of the eyes."

CLASS: PRIMARY OR SECONDARY

The majority of the few cases reported have been secondary, and most commonly secondary to nasal diphtheria.

Stephenson makes note of a number of cases secondary to "bronchial diphtheria," and to "running ears." Barkan writes of a number of "pseudodiphtheritic" cases "in the wake of blennorrhea in the adult and in the new-born.

Lewitt's case "was in connection with a most malignant case in which the larynx, pharynx and nasal cavities were involved. In the mouth the membrane covered a portion of the hard palate."

The secondary cases are from autoinoculation from discharges from other infected areas.

In the *Lancet* of Jan. 4, 1908, Slater reports a case of a girl who was treated for some eye inflammation: a week or two later several white patches were found on the vulva and spread elsewhere on the skin. Antisyphilitic treatment was tried for two years. Then after inoculation of agar and blood serum tubes and experiments on guinea-pigs, the Klebs-Loeffler bacillus was found. Diphtheria antitoxin was given and immediate improvement followed. Slater believes that the patient's eyes were the primary seat of infection.

Primary cases in attendants on patients in tonsillar cases have been reported, the discharge having been coughed by the patient into the eyes of the attendant.

SYMPTOMS

The period of incubation is from twenty-four hours to four days. McCollom says that diphtheria differs from

other infectious diseases, as the process of infection is similar to that of a dissecting wound. The organism finds access through an abrasion of the mucous membrane as an infection is produced from the prick of a needle at autopsy or a scratch during dissection.

The eyelids may have been red and inflamed for a few days or a few weeks. They become swollen and very painful. The child cries at every attempt to open his eyes. A membrane, gray or whitish-gray, like that found on the diphtheritic tonsils, forms on the conjunctiva. It may be delicate and thin, thick and strong, or in small patches, according to the severity of the disease. It may or may not extend to the cornea. Iris prolapsis, severe ulceration of the cornea and loss of sight may result. The removal of the membrane leaves a granular bleeding surface. The formation of the membrane may be attended by a seropurulent discharge which may contain the Klebs-Loeffler bacillus, accompanied by the *Bacillus xerosis*, the *Streptococcus pyogenes*, and the *Staphylococcus*. The lids may be glued together and much swollen.

The constitutional disturbance is as great as in other forms of diphtheria. The toxin generated in twenty-four hours is sufficient to produce death in severe cases. The effect on the heart must be constantly borne in mind. Systolic murmurs are frequent. The pulse is of peculiar soft character and if very rapid demands immediate attention; if very slow it predicts fatal results.

The glands of the neck may or may not be enlarged. Sterling writes of one case with a severe adenitis. Stephenson speaks particularly of the preauricular glands being involved. Italian and French writers report cases of diphtheritic conjunctivitis having no membrane, but a granular bleeding surface containing the Klebs-Loeffler bacillus, and yielding to antitoxin.

Diagnosis is easy with the aid of the microscope. The diphtheria bacillus can be distinguished from the pseudo-diphtheria bacillus by its losing its gentian violet more quickly when in alcohol than does the pseudo-diphtheria bacillus. The true diphtheria bacillus gives an acid reaction in neutral bouillon, and the xerosis never does. The injection of diphtheria suspension into guinea-pigs causes constitutional disturbance, while the pseudo-diphtheria causes a swelling only at the point of puncture.

TREATMENT

Before antitoxin days silver solutions, peroxid of hydrogen, borax, boracic acid and camphor washes were used, with great mortality. Recovery, if this took place, required from eighteen to twenty-four days.

Since the administration of antitoxin fatalities have dropped from 60 per cent. to 3 per cent. As in other classes of diphtheria invasion, the earlier the administration of antitoxin the better. Some foreign ophthalmologists deny that early injection of antitoxin prevents corneal invasion. Most Americans agree with them; Bull does not.

Dr. Lewitt advocates large doses of antitoxin, with no local treatment. Dr. Barkan recommends, in the treatment of true diphtheria, the injection of antitoxin; in the pseudo-diphtheria the use of silver salts; when the cornea becomes implicated, pilocarpin rather than atropin on account of the tension-decreasing properties of the first. Pilocarpin is used by some practitioners as an antipyretic, but it is denounced by others for its debilitating effects. Antitoxin renders the use of antipyretics unnecessary.

The following report of two cases may be of some interest:

CASE 1.—Patient.—Y. Z., aged 1 year, was seen by me for the first time three hours before he died. He had been attended by a physician for seven days and had been treated for bronchitis.

Examination.—The child lay in a stupor, clammy to the touch, with eyelids much swollen, as large as walnuts; protruding just below the rim was a fringe of thick grayish-white exudate. The breathing was halting and slow. The pulse was slow and irregular. When the child's mouth was forced open, the tonsils, soft palate, and part of the hard palate were seen to be covered with membrane. The eyelids were fastened together. When they were forced apart, a thick gray membrane was seen to cover the conjunctiva of the entire eye. A portion of this membrane was removed and sent to Dr. Webster for microscopic examination.

History and Clinical Course.—The serious condition of the child was explained to the parents, who had believed that the child had a "severe cold in its eyes and in its chest." The following information was drawn from the mother: The child had been taken, about two weeks before, to see a neighbor whose child had a "cold in the eyes." A short time after, the child was feverish, cried, and refused its bottle; its eyes became sore and swollen. It cried whenever its eyes were touched. It grew constantly worse until death. Dr. Webster reported the membrane as diphtheritic.

The infection of this child's eyes must have been secondary to the tonsillar diphtheria. A question remains unanswered: Did this child's throat become infected when he visited the child with the sore eyes?

CASE 2.—Patient.—A. B., 2 years old, was brought to my office. He had been suffering with a cold in the head for two days.

Examination.—The patient's nose discharged a thin watery fluid which irritated the skin wherever it touched. The discharge from his eyes was seropurulent. The eyelids were puffy and painful. When the eyelids were everted, small patches of gray membrane were seen on the conjunctiva. Examination of the tonsils and nose was negative. A specimen of membrane was sent to the laboratory for examination.

Treatment and Clinical Course.—Four thousand units of antitoxin were given the patient as soon as he could be put to bed. The next morning there was some improvement, but 4,000 units more were administered. In three days the patches of membrane had peeled off, and the nasal discharge had ceased. The laboratory report was that the membrane was diphtheritic. The child was kept in bed one week longer and completely recovered. This was undoubtedly a case of primary infection.

"Running ears," "sore eyes" and "discharging noses" may be considered by the laity as harmless ills, but there is no doubt that from these apparently harmless cases severe epidemics of diphtheria may result. It is also certain that this form of diphtheria is more prevalent than is supposed. Special supervision should be exercised in schools, and children displaying such symptoms be promptly sent home, with instruction to have the attention of their physicians. The medical profession should be on the alert to recognize the disease.

1050 Jackson Street.

Infant Feeding.—G. R. Pisek, in the *American Journal of Obstetrics and Diseases of Women and Children*, states that to be a successful infant feeder one should have a clear idea of (1) the general principles of animal nutrition; (2) the peculiarities of digestion in infants and young animals; (3) the food materials which may be used in feeding infants; (4) the methods of preparing foods; (5) the indications and contraindications for different kinds of food. With a working conception of these subjects, any physician may become a good infant feeder with practice.

RESECTION OF CECUM AND LOWER PORTION OF ILEUM

FOR FECAL FISTULA RESULTING FROM PERFORATION OF AN ACUTE GANGRENOUS APPENDIX

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TILLAMOOK, ORE.

Patient.—C. R. J., a man, aged 46, weighing 240 pounds, had been ill for two weeks when I first saw him.

Examination.—The patient had a temperature of 103.2 F., cold clammy sweat, rapid feeble pulse, and complained of great pain in the lower abdomen and right side, where there was a large mass extending upward to the lower border of the ribs on the right side. By abdominal palpation I found extensive induration over McBurney's point extending one inch to the left of the median line. No pus had been passed by rectum. A diagnosis of acute perforative appendicitis with abscess was made.

First Operation.—I made an exploratory incision over McBurney's point, two inches in length, and going carefully through the peritoneum, found a large walled-off abscess, which ruptured as soon as I had opened into the peritoneum. Large quantities of pus and fecal matter of a very offensive odor gushed forth, which was carefully sponged away with dry sterile gauze. A great quantity of gas also escaped. Owing to the shock and the degree of infection I did not attempt to remove the appendix, so introduced tubular drainage, and placed one or two through sutures through the abdominal wall.

Postoperative History.—The patient rallied well from shock, but suffered much from an acute eczema caused by the irritation of fecal discharge, somewhat mitigated by the use of powdered zinc oxid and talc, equal parts. For the next month there was no improvement, so far as the fecal fistula was concerned. For almost two weeks rectal alimentation alone (peptonized milk and beef tea) was given.

Second Operation.—I opened through the old incision, dissected out the fistula, a long tedious operation—sponged the field of operation, kept it clean, found the head of the colon, but could not raise it, owing to dense adhesions and fear of infecting the general peritoneal cavity. The appendix, which was large and gangrenous, was adherent at the tip to the anterior mesenteric portion of the ileum about one-quarter of an inch from its juncture with cecum; the base had ulcerated and sloughed away, leaving a perforation in the colon. I broke up the adhesions, removed the appendix, freshened the perforation and closed it with a double layer of sutures, closed the abdominal incision with a few silkworm-gut sutures, and supplied drainage as usual.

Postoperative History.—The patient was kept on rectal diet for three days, after which slight nutriment by mouth was allowed. On the fourth dressing fecal matter poured out in considerable quantity. I waited four weeks more for some show of improvement. Meantime, the abdominal wound was irrigated four times daily with normal saline solution; and large pads of sterile gauze and absorbent cotton were placed on the fistula, which was dressed several times a day with equal parts of zinc oxid and talc.

Third Operation.—I enlarged the original incision, dissecting away the edges of the fistula in the bowel, sewing through and through the site of the fistula and turning in with sub-peritoneal stitches.

Postoperative History.—Rectal alimentation was again resorted to for seventy-two hours. The wound was dressed as usual; on the third dressing fecal matter, as before, was present in abundance. Knowing now the uselessness of waiting, I fed my patient eggs, beef, etc., for four weeks, until his general condition had improved.

Fourth Operation.—I completely excised the diseased parts, with end-to-side anastomosis with Murphy's button. Thoroughly asepticizing the field of operation by irrigation with normal saline solution, I enlarged the original incision, removing all scar tissue, carefully dissecting down to the colon, broke up all of the adhesions, sponged the field of operation with dry gauze sponges, brought the head of the colon up into

the incision, clamped off about three inches of the colon with an enterostomy clamp, divided the colon between two clamps; clamped off the ileum in same manner, covered the cut ends with wet hot sterile sponges wrung out of hot saline solution, clamped off and ligated the mesentery after the manner of Ochsner. I then closed all bleeding points, closed the proximal end of the colon by overhand suture of celluloid linen, invaginated it and closed with subperitoneal suture. One end of the Murphy button was introduced into the end of the ileum in the usual manner, and the other was introduced into the anterior surface of the colon about four inches above the point where it had been resected. The toilet of the peritoneum was carefully made, the abdomen closed by layers, and a small tubular drain introduced.

Subsequent History.—The patient was given a small quantity of warm water every hour until next morning; then he was given a small quantity of beef broth and other nourishment. The wound was dressed the second day and drainage removed; a very small fecal fistula resulted, which closed six weeks after operation, and patient at this date, three months after last operation, is following his usual vocation, that of a barber, and says that he never felt better in his life.

CONTINUOUS VICARIOUS MENSTRUATION FROM THE BREASTS

JAMES BROWN THORNTON, M.D.

BOSTON, MASS.

Apropos of the article by Dr. George Gellhorn,¹ St. Louis, a brief review of a most unusual condition of the apparatus of gestation appearing in the case of a young woman just dismissed from my care will, I am sure, prove interesting:

Patient.—Miss M. L., aged 32, a virgin, well-developed, with a wealth of magnificent black hair which, when uncoiled, reached to her feet, was brought to my office last summer by a near relative of the patient, with a history of progressive depression merging into melancholia, and a comparatively recent suspicion of suicidal tendency, which was the direct cause for alarm on the part of those interested in her.

History.—The patient came to this city from Canada about fourteen years ago. She had been a parlor maid until two years ago, when, because of a tragedy in the household in which she worked, the home was broken up. She first menstruated at the age of twelve or thirteen. The function was regular until stopped by a severe attack of measles about two years later. At the end of a year or so it was resumed, only to cease again within a few months, since which time the menses have never reappeared normally. In place of the usual menstrual activity there appeared a discharge of blood—sometimes a thin fluid mixed with blood—from both nipples, and from that day to the present, the patient has had constantly to keep in her corsage two tampons of absorbent cotton, one of which at least, the right, has had to be changed once each day.

An ocular demonstration of this remarkable phenomenon was given me in my office on more than one occasion. Thorough vaginal examination by Dr. Charles H. Hare and myself revealed a rudimentary, undeveloped or possibly atrophied condition of uterus and ovaries. Recent unwise conversation with well-meaning, but ignorant and superstitious individuals had brought about the mental state which led her friends to bring the young woman to me. Faithfully administered psychotherapy at my hands (without the assistance of our Boston Emmanuel movement, I might add, or other church instrumentality) over a period of some weeks brought about a complete restoration of the patient's well-being, and she is now, as she was before, one of the most optimistic and light-hearted of the young people in her set, but at last accounts the mammary glands were still giving a daily sanguineous discharge. The

1. Abnormal Secretion from the Mammary Glands in Non-Pregnant Women, THE JOURNAL A. M. A., Nov. 28, 1908, II, 1839.

question of marriage was brought up during the course of treatment, but circumstances seemed entirely to preclude such a possibility. My belief is that the results of such a step would be of value.

From a brief correspondence with Dr. George Gellhorn about the case I received the logical suggestion that the use of styptics combined with ovarian extract might lead the menstrual afflux of blood once more to the uterus, and if opportunity offers I shall certainly advise such a method in lieu of the seeming impossibility of marriage.

168 Huntington Avenue.

NOTES ON FAMILY GOITER

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The following instance of transmission of goiter through four generations is of interest, especially in this country, where the endemic causes of goiter do not seem to be present:

Patient.—Pauline M., 18 years old, was admitted to the surgical service of the Moses Taylor Hospital on account of an enlargement of the thyroid gland which had been present about four years. During the last three months she had had considerable dyspnea and discomfort from the tumor. The right lobe and isthmus of the gland were removed, and on microscopic examination proved to be of typical parenchymatous structure. The patient made an uninterrupted recovery. The following notes show the course of this disease through the family.

Fourth Generation.—The patient, Pauline M., as above noted. A brother, aged 19, has a symmetrical swelling of the thyroid gland which causes considerable dyspnea. A sister, 16 years old, has a marked enlargement of the left side of the thyroid which does not cause any symptoms. There are four other brothers and two sisters, all below the age of puberty, and none shows thyroid enlargements.

Third Generation.—The patient's mother has a large, pendulous, goiter involving principally the right side. She has considerable dyspnea and discomfort. Her voice is harsh, her speech sibilant, and she has slight exophthalmos. I verified the above cases by personal examination. The pulse rates in all were normal and there were no signs of hyperthyroidism. In this generation the patient had five uncles and five aunts. Two of the aunts had large goiters, none of the uncles had this trouble.

Second Generation.—The patient's maternal grandmother, who was born in Berlin and came to this country in 1860, had a large goiter. The generations mentioned above were all born in America. In this generation there were two great-aunts who had goiter and two great-uncles and two other great-aunts who did not have goiter.

First Generation.—The patient's maternal great-grandmother, who lived in Berlin all her life, also had a large goiter. There is no knowledge of other members of this generation.

The patient's father came to this country from Stuttgart in 1873. There has never been any goiter in his family to his knowledge.

SUMMARY

In the patient's generation there are one brother and one sister with goiter. The mother, grandmother and great-grandmother had goiter, and two aunts and two great-aunts had goiter.

It is interesting to note that as far as the knowledge of the family goes, the disease was entirely confined to the female members until the present generation, in which one boy is affected.

Therapeutics

COLDS

It is generally understood by a cold that an acute rhinitis (coryza), acute pharyngitis, and perhaps acute laryngitis, tracheitis and bronchitis, one or more of these conditions, is present. The causes of "catching-cold" are: infection, impure air, dust, a local tendency, a general tendency.

Most colds are contagious, more or less directly, and are likely "to run" through families, offices, stores and schools, once having started.

Impure air breathed in crowded rooms or vehicles, or in stuffy, ill-ventilated sitting-rooms or bedrooms is a distinct cause of nasal and throat congestions.

Dust-laden air, whether in buildings, vehicles or on the streets is conducive to nasal and throat irritation sufficiently to cause colds, and it is obviously noticeable that when cities neglect to water their streets, as they often do in the late fall (before, in the northern cities, the snow lays the dust) and in early spring, that catarrhal affections of the upper air passages are enormously increased.

A local tendency to colds is caused by chronic hypertrophies and congestions of the nose and throat, sub-acute or chronic catarrhs of these regions, by any condition of the lungs or heart that would tend to cause congestions of these mucous membranes, and especially by such a condition of the nose or nasopharynx mucous membrane (hypertrophy and adenoids) as will cause mouth breathing more or less constantly. Such patients are more prone to acute infections of the throat and lungs than are those who breathe through their nostrils.

A general tendency to colds is produced by a hypersusceptibility, or a diminished resistance power, to the ever-present germs and irritant dust particles in the atmosphere. Such a condition is brought about by any chronic debility or subnormal condition of the patient, be it anemia or a more serious condition. In many instances this general tendency to colds lasts a lifetime, and it may even occur in families, and any amount of hygienic care, good food and tonics may not prevent the frequent recurrences of colds. Such patients, if possible, should live in a climate that is not subject to radical changes in temperature and in a locality that is as dust-free as possible.

PROPHYLAXIS

To prevent colds such measures should be instituted as will prevent the above causes, and the order of their importance is really in the inverse order of the list of causes named. The general tendency to colds should be prevented by hygienic living, which means outdoor air and fresh, clean indoor air, and as fresh air while at work as can be acquired with the surroundings in which the person must be. Overheated rooms predispose to colds and are insanitary. An over-amount of clothing is inadvisable, but just what clothing is proper for each patient must be decided by good judgment and careful advice. Physical exercise or gymnastics should be advised for those who do not labor. Cold sponging in the morning of the face, neck and chest is advisable, and any treatment, massage, hydrotherapeutic or other, that will tend to make the general circulation of the skin better will prevent catching cold. Of course circulatory and digestive disturbances must be corrected, and the proper eating of the proper

food for the climate and time of year is a great aid by preventing such disturbances of secretions and excretions as cause the congestions that allow colds to develop.

Chronic inflammation of the upper air passages must be cured if possible. Local hypertrophies and superfluous glandular tissue should be removed.

Boards of health should have power to cause the prevention of street dust plagues and to cause proper cleanliness of public vehicles and public gathering places like halls, theaters, etc. A general public education on the seriousness of, and the infections carried by, unnecessary dust would soon cause such state legislation and city ordinances as would prevent this unnecessary nuisance. Many dusty occupations are made dustless by proper ventilating or suction apparatus, and where such prevention of dust is possible it should be required by law.

It is certainly inexcusable in this age to cause clerks in stores, or operators in factories, or children in schools, to have so few cubic feet of air space per individual as to allow impure air. Individual instances of such conditions are, of course, frequent and many, but the trend of public opinion and of public officials and of boards of health is to prevent these conditions. Many families are still very careless about the air in their rooms, and especially in their bedrooms. While urging plenty of fresh air during sleep, it is not advisable nor advised that enough windows, or windows and doors, be kept open to allow of strong drafts. The best plan is to have the doors of the sleeping-room closed, unless the room is very small, and one or more windows widely open.

The prevention of the spread of colds by infection in the household is simple, and it should be generally known that they are contagious and that a patient coughing and sneezing should prevent spraying by the constant use of his handkerchief. He also should keep away, or be kept away, from close contact with any other individual, unless, of course, the patient is a child. The patient should use plenty of handkerchiefs so as always to have a clean one at hand, and the handkerchiefs should be put into a handkerchief bag and then washed separately from other clothing. The rooms in which a patient with a severe sneezing and coughing cold has been, even for a short time, should be well aired. This is better for the patient and better for the rest of the family.

In public vehicles or in any public place, whether in schools, in stores or in factories, a patient with a cold and cough should always use his handkerchief and prevent spraying of the atmosphere. The more this is insisted on the less frequently will diphtheria, tonsillitis, pneumonia, tuberculosis, and even colds, occur. Spitting ordinances are now in evidence in most cities and should be in the smaller towns. It is indecent to spit in any place except receptacles prepared for that purpose, or, if must be, in the street gutters, and a patient with even nothing more than an ordinary sore throat or a simple bronchitis should seek running water into which he may expectorate if he does not care to use his handkerchief. An antiseptic cleansing spray or gargle for a patient who has a cold will prevent the infection of others.

ABORTIVE TREATMENT

A cold having been caught, the attempt to abort it is made by draining the blood vessels (catharsis, sweating)

and thus relieving the local congestion, or by dilating the peripheral circulation and thus relieving tension, or by locally treating the inflamed mucous membrane either by astringents or by vasoconstrictors or by drugs that dry up the mucous secretion. During this first and acute stage of acute colds, and especially of coryza, various drugs and methods are used to further the indication for the relief of the local blood tension and the congestion of the local mucous membrane.

In four recent issues of the *New York Medical Journal* (Oct. 31, Nov. 7, Nov. 14 and Nov. 21, 1908), sixteen physicians have outlined what they considered the best treatment to abort colds. It is interesting to note that of these sixteen, fourteen advised the use of Dover's powder and two morphin. Four only advised a coal-tar product and then acetphenetidinum (phenacetin). Three advised Turkish baths, seven a hot foot bath, one a hot sitz bath, two hot lemonade, and two alcohol, presumably in some hot liquid. Five would give acornite, one veratrum viride and six would give quinin. One administers castor oil, three give calomel in one dose, two give calomel in divided doses, and one follows the calomel with a saline. Three would give salines alone. Sweet spirits of niter or a nitrate was advised by five. Atropin was advised by four, belladonna by three. Locally suprarenal extract in some form was advised by four, and various sprays containing camphor, menthol, etc., were advised by six physicians. Later, various sprays or washes, among which may be mentioned Dobell's solution, Seiler's tablet solution or boric acid solution, were recommended.

It is thus seen that the method of depletion of the blood vessels and the relief of local congestions most advised is that of sweating. Theoretically the best means to produce this kind of a sweat is by the Turkish bath or by hot-air treatment, the body baking as it is termed.

The next best would be a hot tub-bath, after which the patient is put to bed, with hot lemonade or other hot drinks, with or without alcohol, as deemed advisable. Most patients will not bother, however, with such treatment, and substitutes, as hot foot-baths and hot sitz baths are more likely to be employed, and if even these methods are not used, and even with these methods, Dover's powder in dose of 0.60 gram (10 grains), as the patient goes to bed, is certainly good treatment.

The administration of quinin to abort colds is not now much recommended by physicians, although often used by the laity. A dose sufficient to act as a derivative and perhaps inhibit the migration of the white blood corpuscles from the congested vessels, which it seems to be able to do, must be large enough to cause unpleasant cinchonism. Also the tendency of colds during the last few years has been to cause inflammation of the middle-ear. This being the case, physicians have become wary of using any drug like quinin which will cause middle-ear hyperemia and perhaps predispose to inflammation of the middle-ear. Theoretically, also, as most nasopharyngeal inflammations are due to some germ, leucocytosis and ameboid activity are needed to combat the infection, and quinin, if it does not actually inhibit leucocytosis, does inhibit the ameboid activity of the polymorphonuclear leucocytes. Consequently quinin and perhaps salicylic acid should not be administered unless there is some specific indication for them.

(To be continued)

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SATURDAY, JANUARY 16, 1909

THE FOOD VALUE OF MOSSES, SEaweEDS AND
SIMILAR ARTICLES

There has been a growing tendency to recommend for general consumption, as well as for special dietaries, a number of forms of carbohydrates that have not previously received much consideration as articles of diet and sources of nourishment. This tendency probably owes its recent growth to the combined influence of various cults and faddists, to commercial enterprise, and to the efforts to secure carbohydrate foods that might be used in place of starch and sugar in the menu of the diabetic. With this motley backing it is not strange that the claims made for the value of these unusual food stuffs have been commonly more enthusiastic than judicial, and that they have been used widely without due consideration of their real value as determined by observation and experiment. The careful

which attack them are strongly specific, each enzyme limiting its action to one or to a few carbohydrates, in marked contrast to the proteolytic enzymes pepsin and trypsin which attack nearly all proteins. It is commonly understood that man can not utilize cellulose, as can some other animals, because he is not provided with digestive enzymes which can decompose the insoluble cellulose into assimilable sugars, but it is not so well appreciated that the peculiar carbohydrates of the algae and lichens are closely allied to cellulose both as to chemical composition and availability. They are all formed of large aggregates of molecules of some sort of sugar united through a process of dehydration, which can be set free by a reverse process of hydration; and while cellulose is a polymer of the highly available glucose, the carbohydrates of the lichens, algae and gums are for the most part polymers of less familiar, and probably less utilizable carbohydrates, such as pentose, methyl-pentose, galactose, and mannose. Therefore, before we can judge of the food value of any complex carbohydrate we must first know whether it can be hydrolyzed in the alimentary tract, and whether the sugars derived from it can be utilized in the metabolism of the human body. As a matter of fact, we have very little reliable evidence concerning the carbohydrates under discussion, and that which we have is largely negative.

As a typical case in point may be taken the history of inulin in modern dietetics. This substance is found

cosuria of the diabetic, but it is not probable that the diabetic will find them very satisfactory for the purpose of nutrition or for preventing acidosis.

Professor Mendel concludes his paper as follows: "The results of the experimental studies should warn us against the hasty acceptance of every so-called carbohydrate food stuff as real nutritive material. We must build on the basis of exact studies of metabolism. Many of the modern products have doubtless a deserved place in dietetics as accessory food stuffs both in health and disease, entirely independent of any actual nutritive function. And what has been said concerning the carbohydrates applies to the other components; for example, it has been believed that some of the algæ which are rich in nitrogen possess especial value because of the high protein content which the nitrogen is supposed to indicate. However, my experience with mushrooms, in which the abundant nitrogen was found to represent unavailable nitrogenous substances rather than proteins, teaches the need of caution in estimating the food value of such forms of plant life. Perhaps the fact that so few of the suggested food stuffs discussed above have found any general recognition, although they are widely disseminated in Nature, may be accepted as an instinctive expression of their lack of real nutritive value."

THE NOBEL PRIZE FOR 1908: METCHNIKOFF—EHRlich

The Nobel prize in medicine for 1908 has been given to Metchnikoff and Ehrlich, the full prize having been divided. Whatever the reasons and motives may have been that led the wise men in Stockholm thus to divide the prize, there is no question whatsoever but that in the opinion of those competent to judge of the value of the scientific work of Metchnikoff and Ehrlich, each has earned the undivided prize. This is so apparent that special considerations in addition to those of individual merit must have led the committee to divide the prize. Speculation as to what these special considerations may have been would be useless. On the other hand, a glance or two at the work of the two prize-winners is in order.

Originally a Russian zoologist, Metchnikoff became our first great comparative pathologist. His chief credit is the establishment by extensive comparative studies of the occurrence of phagocytosis in all classes of animals and its significance in infections. In all animals the most striking phenomenon in the reactions to infection and injury seemed to him to be phagocytosis, and hence arose the phagocytic theory of healing and immunity. This theory Metchnikoff and his followers defended with great skill and ingenuity against the violent attacks on it by the adherents of the humoral theory of immunity, especially in Germany. The resulting controversy proved a powerful stimulus to investigation and a degree of harmony has been reached as it has become clear, on the one hand, that cells are

essential to the production of the antibodies that give to the fluids of the body their protective and healing properties, and, on the other hand, that the fluids of the body are essential to phagocytosis. In other words, neither theory alone accounts fully for the phenomena of healing and immunity, but both taken together go far toward furnishing a satisfactory explanation. Phagocytosis will ever be regarded as an important means of defense and healing, a few lingering, repetitive protests in Germany to the contrary notwithstanding.

Since the controversy in regard to phagocytosis passed its height, Metchnikoff has carried out important experiments on the inoculation of syphilis in apes and monkeys—this in conjunction with Roux—and in addition he has occupied himself with his interesting speculations on the prolongation of human life, concerning the value of which opinion is divided.

Familiar through his early and special work on the differentiation by selective staining of leucocytes, Paul Ehrlich is best known as the father of the side-chain theory. First advanced in order to explain the action of bacterial and other toxins and the formation of anti-toxins, it soon proved equally applicable to the explanation of the action of antigens and the formation of antibodies in general.

The theory is so familiar that it is not necessary to restate it except in the briefest possible form: A toxin or any other antigen is without action unless bound by suitable molecular chains in the cells—receptors—but when so bound the antigen causes injury to the cell and in the process of repair there results an overproduction of receptors which on passing into the blood constitute the antibody for the antigen in question because the antigen is now bound and neutralized before it can reach the cell. Antibodies are free cell receptors and the elements that, when situated in the cells, are essential for the action of toxins, for instance, are also the means of healing when free in the blood. This beautiful theory is one of the greatest in science. It has been and is still of the greatest usefulness in stimulating and guiding investigation in the field of immunity and of related biochemical phenomena.

Numerous new words coined by Ehrlich in accord with this theory have proved helpful in facilitating discussion of new facts and ideas and have passed into current international usage.

Guided by the principles of the side-chain theory Ehrlich developed a method for standardizing antidiphtheria serum which has been adopted officially and is now used daily by most countries, including our own.

More recently Ehrlich has advanced interesting considerations in regard to experimental cancer in mice, immunity to which he explained on the basis of the side-chain theory, and he has also found help in his theory in his recent and brilliant chemo-therapeutic studies,¹ the aim of which is nothing less than to dis-

1. THE JOURNAL, Dec. 5, 1908, p. 1976.

cover new chemical substances with specific curative properties for certain infections, at present more particularly trypanosomiasis.

The name of Ehrlich will live in honor in the history of medicine because his theory has promoted rational treatment of infectious diseases and aided our understanding of biochemical manifestations.

THE EVOLUTION OF THE CEREBRAL CORTEX

The problem of the structure and functions of the cerebral cortex is intimately bound up with its evolutionary history. This history has been assiduously studied during the whole modern period of comparative anatomy, notable contributions coming from Edinger and Elliot Smith, who have shown how the whole forebrain has been built up around what is in the human brain one of its relatively unimportant parts, the olfactory apparatus. The earliest cerebral cortex to appear was olfactory in function, the hippocampal formation, and has been termed the "archipallium" to distinguish it from the more recently evolved cortical centers for the other senses and their motor return paths, the neopallium.

The fundamental and far-reaching character of this distinction is confirmed by the researches of Flechsig on the sequence of development of the conduction paths in the human cerebrum, for he finds that the olfactory cortical connections come to maturity in general earlier than those of the neopallium.

A notable series of researches bearing on the phylogeny of the forebrain has recently come from Edinger's laboratory at Frankfurt, and the chief results are incorporated in the second volume of the seventh edition of Edinger's¹ lectures on the central nervous system. The most important point is that the earliest cortex cerebri was evolved, not merely as an olfactory cerebral center, but as an organ of correlation for all the organs of sense and motion connected with the nose, mouth and lips, a sensation complex termed by Edinger the "oral sense" (*Oralsinn*, Edinger, *Schnüffelsinn*, Kappers).

In the lowest vertebrates the olfactory paths are certainly the most important elements of this complex, but as we ascend the animal series other sensory conduction paths to the forebrain are progressively added. In reptiles and birds there is a strong secondary tactile path from the nuclei of the trigeminus to the forebrain, but this does not reach the cortex. The corpus striatum in these animals is very large and here the reflexes of the oral sense are elaborated, the cortex being very imperfectly developed.

The true olfactory cortex (called the hippocampus or the archipallium) in the earlier phylogenetic stages greatly predominates over the neopallium; never-

theless both appear very early and, according to these latest researches, their evolution is mutually interdependent.

Thus the architectural motive which first called forth the cortex cerebri was the demand for a more extensive and flexible type of correlation center for the reflexes concerned with feeding and finding food. The visual and acoustic paths were very early added to the neopallial part of the wall of the hemisphere and later (in the mammals) the functions of the forebrain were enlarged to include all of the more complex reactions to stimuli coming from objects at a distance from the body, or, as Sherrington² expresses it, the forebrain becomes the integrating organ for the distance receptors.

Some of these reactions are, no doubt, unconscious reflexes — very complex, perhaps, yet wholly mechanical. Reflexes of this type are common to the whole of the basal or stem portion of the brain. On the other hand, the sense organs which receive impressions from remote objects, such as the eye and ear (distance receptors of Sherrington) may involve a type of response very unlike the reaction of the body to stimuli whose sources are in contact with the body. In the latter case the adaptive response follows immediately on the stimulus, and the more perfectly it is mechanized the better.

But the reaction to a distant object, say the prey of a carnivorous beast, involves two separate factors: (1) an anticipatory reaction (movement toward the prey and seizing it), and (2) the consummatory reaction (mastication and swallowing). Since the anticipatory phase of itself gives no immediate satisfaction, it follows that this complex reaction to distant objects involves much more elaborate associational processes in the nervous system than the simpler response to contact stimuli; and the more complex the anticipatory phase becomes, the more intricate the necessary coordinating mechanism must be. It is in this more complex type of distance reaction alone that a high degree of intelligence is necessary; indeed, here only where foresight (literal and figurative) precedes the satisfying consummatory reaction, is the participation of intelligence desirable or possible to any great degree, as Sherrington has clearly shown in the work cited above.

The cerebral cortex, then, became the chief organ of intelligence because it only is structurally adapted to serve the complicated correlations of sensory stimuli involved in the anticipatory reactions which alone call for special intelligent adaptations.

In some of the lower mammals the sense of smell is apparently the most important of the distance receptors, and here the archipallium is the most important part of the cerebral cortex. In these cases the mental imagery is doubtless elaborated very largely in terms of olfactory sensations. In man, however, the most important as-

1. Vorlesungen über den Bau der nervösen Zentralorgane, Vergleichende Anatomie des Gehirns, Leipzig, ed. 7, vol. II, 1908.

2. The Integrative Action of the Nervous System. New York, 1906.

ciations are in terms of sight and hearing. Accordingly, the neopallium dominates the human brain.³

The study of the minute structure of the cerebral cortex is now pursued more actively than ever before, and the chief problem here is the correlation of the demonstrable anatomic differences between the different cortical areas with the sensorimotor associational and projection fibers which put these areas into functional relation with each other and with the periphery. Until these facts are much more fully known than at present it will be impossible to elaborate the doctrine of cortical localization on a firm basis.

HOW TYPHOID BACILLI MAY REACH THE GALL BLADDER

The modern microbe carrier presents many interesting and difficult problems that await solution. In the case of the typhoid carrier the great question is how to rid the intestinal tract of typhoid bacilli which appear to live on there or to be eliminated by way of the intestinal contents, sometimes for remarkably long periods.

The theory has been advanced that in these cases the bacilli live on and multiply in the contents of the gall bladder whence they pass into the intestines and appear in the feces. This theory which has many facts in its favor naturally led to the idea that removal or drainage and irrigation of the gall bladder would permanently free the carrier of his bacilli. On account of the great importance of the carrier in spreading typhoid fever this would have been a most welcome solution of a problem surrounded by many and novel difficulties, but apparently the conditions are not so simple as was at first assumed. It was soon found that the disappearance of the bacilli from the feces after operations on the gall bladder in some cases was only temporary. It seems certain, therefore, that, at least in some cases, the bacilli find a permanent abode elsewhere than in this viscus.

Certain observations indicate that one such place is furnished by the larger bile ducts. The cystic duct has been found completely obliterated by impacted calculi in the case of a paratyphoid carrier so that the gall bladder could not be regarded as the reservoir for the bacilli which continued to be eliminated in the feces after cholecystostomy. Highly interesting results pointing in the same direction have been obtained by recent microscopic studies of the gall bladder and bile ducts in typhoid fever and experimental typhoid infection.

Chiari and others long since called attention to the fact that anatomic changes in the gall bladder occur in typhoid fever, but the exact mode of origin of these changes does not seem to have been made out.

Joseph Koch,¹ in an instance of beginning typhoid cholecystitis, found marked inflammatory infiltrations into the mucosa, especially at the summits of the folds, often enclosing dense masses of bacilli which gave all the appearance of being capillary emboli. From these foci the bacilli are assumed to have passed through the epithelium into the contents of the gall bladder. Heretofore the bacilli have been thought to reach the interior of the gall bladder by way of the biliary secretion, but it would seem that they may do so from the capillaries in its walls as well, and the point should receive special attention hereafter.

In order still further to study this question, Koch injected rabbits intravenously with typhoid bacilli, which he found would reach the interior of the gall bladder even when the cystic duct was tied beforehand. He claims to be able to follow the transit of the bacilli through the wall from emboli in the capillaries of the submucosa. Not only the walls of the gall bladder but also those of the larger bile ducts of the rabbits showed the same inflammatory changes as were found in the human gall bladder.

This localization of the bacilli in the walls of the biliary apparatus may be the reason why the process of bacillary elimination continues for such a long time in many carriers, as well as why it has proved so resistant to the means so far used to cut it short. A thorough study of a large amount of typhoid material with special reference to the manner of invasion of the bile by the typhoid bacilli is desirable. Koch's human material is too small to permit of the acceptance of his interesting results as definite, and comprehensive knowledge is necessary in order to learn how best to deal with the carrier.

WALKING

An item in our London letter this week again calls attention to a form of exercise as healthful as, in this country, it is uncommon. Surgeon-Major Hinton, who enjoys the distinction of being the oldest member of the Royal College of Surgeons, in his ninety-fifth year is reported as "walking for pleasure five miles or more a day." How many Americans—physicians or laymen—of even one-third the age of this veteran surgeon walk half that distance daily? In the country the buggy, in the city the ubiquitous street car, and in both the ever-increasing number of automobiles, all operate to make us a nation of riders rather than of walkers. While within the past year walking has been taken up as a passing fad, pedestrianism as a recreation is practically unknown in this country. So much is this so that a man seen walking along a country road is mentally estimated as either a book agent or a tramp—the estimate varying according to his general appearance. Thus a vicious circle is established and the thought of being considered eccentric operates to make walking unpopular. Yet from a hygienic standpoint there is prob-

3. A fuller treatment of these interesting comparative studies will be found in an address recently delivered by Professor Edinger before the Third Congress for Experimental Psychology and printed in English translation under the title, *The Relation of Comparative Anatomy to Comparative Psychology*, in the *Jour. Comp. Neurol. and Psychol.*, November, 1908.

1. *Centralbl. f. Bakt.*, 1908, xiii, (Supplement) 54.

ably no healthier or more invigorating form of exercise. The various ingenious substitutes in the form of calisthenics are, as is the case with all substitutes, a poor excuse for the real article. Horseback riding, which seems to be popular among a certain class, is probably equal to walking as a form of exercise. But horseback riding is possible only for the few, certainly not for the average city dweller. Walking is possible for all, and a brisk four- or five-mile walk, taken not as a duty but as a recreation, is a physical and mental tonic of no mean value. Did it cost money instead of involving effort it would be more popular.

THE BEGINNING OF THE CONTRACTION OF THE VENTRICLE OF THE HEART

There has long been dispute as to whether the ventricle of the heart begins to contract at its base or at its apex. The proximity of the base of the heart to the auricle or atrium lends color to the view that the basal portion of the ventricle contracts first. The recent studies of Tawara, Retzger and others on the distribution of the stimulus-conducting system continuous with the bundle of His have shown that the fibers pass downward into each ventricle to the region of the papillary muscles, where they break up into arborizations and are distributed thence partly toward the base of the heart, partly toward its apex. This anatomic distribution suggested that the base of the papillary muscles and the lowermost portions of the wall of the ventricle must receive the stimulus to contraction before the muscle fibers at the base of the heart. This probability has been subjected recently to experimental test by Rehfish.¹ Working on the dog's heart by physiologic methods he has been able to demonstrate in graphic curves that the heart's apex receives the impulse to contraction before any other part of the ventricular wall, and that the stimulus to contraction is propagated to the base of the heart from it. These experiments of Rehfish seem to be convincing, and if he is right the fact may perhaps be applied by clinicians in explaining the phenomena which pertain to the emptying of the ventricle in myocardial disease.

TUBERCULOSIS CURES

Probably no disease has been the subject of so much altruistic and altogether unselfish study, and its eradication the object of so great an amount of self-sacrificing labor, as has tuberculosis. Conversely, no other disease has been made the basis of so much heartless fraud in the exploitation of commercial "cures." The reason for the latter is not hard to find. Sufferers from tuberculosis die slowly and until the very last they are persistently optimistic as to the outcome. The average consumptive, even though intelligent above the ordinary, is ever ready to grasp the proverbial straw in the form of any much-vaunted "specific" for his dreaded malady. Such material as this is to the "consumption cure"

faker what the confirmed gambler is to the tipster. From the sordid and brutal standpoint of the medical quack the victim of tuberculosis is an easy prey. These facts, patent to every one who has looked into the innumerable "cures" on the market, well exemplified in the article on another page¹ dealing with an institution of this kind. We have investigated this cruel fake with some degree of thoroughness, and we believe a perusal of the results, while not pleasant reading, will prove instructive. It should be borne in mind, however, that this particular concern is but a type. Scattered all over this country are scores, yes hundreds, of other similarly vaunted "cures." THE JOURNAL can expose but a few of them; their elimination can be brought about only by enlightening the public on their inherent worthlessness and viciousness, and this duty devolves on the medical profession.

Medical News

ILLINOIS

Estate to University.—By the will of Dr. James G. Wheeler, Broughton, the James Milliken University, Decatur, will come into possession of his estate, estimated to be worth from \$75,000 to \$125,000.

Scarlet Fever.—The public schools of Sycamore and Crystal Lake have been closed on account of scarlet fever. Rigid and thorough isolation of dairies on farms where there are cases has been established at Crystal Lake, through the efforts of Dr. Harry D. Hull, Nunda, health officer of McHenry County, who has been appointed special agent of the Chicago Board of Health.

Chicago

Illegal Practitioner Fined.—Peter Rundberg is said to have been found guilty of practicing medicine without a state license and to have been fined \$100. The complaining witness was an inspector for the State Board of Health.

Funds for Hospital.—The Maimonides Kosher Hospital Society has begun active work to raise funds for a hospital for orthodox Jews, to cost \$75,000. A site has been purchased for \$6,500 on California Avenue, near Rebecca Street, facing Douglas Park. The proposed hospital is to have a capacity of 100 beds.

Milk Law in Effect.—The new milk law which requires the pasteurization of all milk and milk products other than those from cows which have passed the tuberculin test, technically becomes effective January 1, but complete enforcement will require several months. Meanwhile health officials are proceeding with routine measures to secure wholesome milk.

MARYLAND

Baltimore Personal.—Dr. Charles Downs has been appointed a tenement inspector.—Dr. John J. R. Crozer is reported to be critically ill with kidney disease.—Dr. William Whitridge is reported to be ill at his home with acute gastritis.

Opposition to Merger.—Much opposition is manifested to the proposed union of the University College of Medicine, the College of Physicians and Surgeons, and the Baltimore Medical College, which has been under discussion for a year or more, and little progress apparently is being made toward the merger.

Accidents in Baltimore.—During 1908 there were 2,726 minor accidents in Baltimore, of which 372 were due to street cars and 59 to steam cars. There were 260 fatal accidents, for 23 of which street cars, and 34, steam cars, were responsible. There were 210 attempts at suicide, of which 120 were unsuccessful.

Insane Hospital Report.—The one hundred and eleventh annual report of the Maryland Hospital for the Insane, Catonsville, for the year ended November 1, shows a daily average of patients under treatment of 574, the largest in its history. The number discharged recovered was 30 per cent. Tuberculosis was discovered in 13 per cent., and a

1. Rehfish, E.: Ueber die Ursprungsstelle der Ventrikel-Kontraktion; ein Beitrag zur Lehre von der Reizleitung im Herzen. Berl. klin. Wchnschr., 1907, xlv, 1070.

special building is needed for this class of patients. There is also needed an isolation hospital for the sick, a new dining hall for female patients, a hospital for colored insane, and an institution for the criminal insane.

MASSACHUSETTS

Personal.—Dr. Albert W. Hancock, Lawrence, has recovered from his recent attack of diphtheria.—Dr. Frank B. Pierce, Haverhill, has had his thumb amputated on account of septicaemia.—Dr. Walter R. Mansfield, Boston, has been made a member of the board of bath trustees.—Dr. Foster H. Smith has been elected city physician of Lowell.—Dr. Albert P. Norris, medical inspector for the state and city of Cambridge, has resigned.

Work of Antituberculosis Society.—At the annual meeting of the Brookline Antituberculosis Society, it was shown that the society had a membership of 347, a balance in the treasury of \$492, and that much good work had been done along the lines of a day camp for children and the inspection of home conditions of patients. A night camp for convalescents who work during the day and an open-air school for children who show signs of tuberculosis are proposed for the coming year.—The Lawrence Antituberculosis League has issued a circular calling attention to the necessity of the work against tuberculosis and inviting membership. The following are the medical officers of the league: Dr. Charles G. Carleton, president; Dr. George B. Sargent, vice-president; Dr. J. Forrest Burnham, secretary; Drs. W. H. Coon and George B. Sargent, executive committee; Drs. W. H. Coon, Carl H. Eidam, Frank B. Flanders and George P. Howe, directors; Dr. George P. Howe, director of tuberculosis class; and Dr. Alexander L. Siskind, medical supervisor.

MICHIGAN

Personal.—Dr. Robert McGregor, Saginaw, sailed from Vancouver, January 1, for a visit to Australia and New Zealand.—Dr. Wadsworth Warren, Detroit, has been elected fleet surgeon of the Interlake Yachting Association, and Dr. Charles G. Jennings, Detroit, delegate to the Yacht Racing Union.

Work of the Health Board.—On January 8, in the series of lectures being given at the Grand Rapids Public Library on the work of the various boards and departments of the city of Grand Rapids, the health officer, Dr. William Delano, and the superintendent of the poor, gave an illustrated lecture on the work of the health department and poor commission. During the year, \$35,537 was appropriated for the health department, and also a special fund of \$11,543 for the building and furnishing of a new contagious disease hospital.

MINNESOTA

New Hospital.—The Northwestern Hospital and Zander Institute, Moorhead, completed at a cost of about \$45,000, was dedicated with appropriate ceremony December 13. Dr. Edward W. Humphrey is physician-in-charge.—Work has been begun on a sanitarium near Shakopee by Dr. Henry P. Fischer.

Society Meeting.—At the annual meeting of the Minnesota Valley Medical Association, held in Mankato, December 8, the following officers were elected: President, Dr. Ferdinand N. Hunt, Blue Earth; vice-presidents, Dr. A. Franklin Strickler, Sleepy Eye, and Lida Osborn, Mankato; secretary, Dr. Aacolph G. Liedloff, Mankato, and treasurer, Dr. George F. Merritt, St. Peter.

Tuberculosis Relief.—At the meeting of the St. Paul Tuberculosis Relief Committee, it was announced that "Tag Day" contributions had reached the total of \$17,869.79, of which one individual contributed \$2,500. Five free dispensaries are to be established in various parts of the city, and Drs. Longstreet Taylor and Charles L. Greene, and Robert O. Earl are the medical members of the board of management.

MISSOURI

License Revoked.—The State Board of Health announces the revocation of the license of Dr. H. M. Wilson, Forest City, for writing prescriptions for spirituous liquor.

Society Meetings.—At the annual meeting of Montgomery County Medical Society, held in Montgomery December 17, Dr. Alonzo R. Kieffer, St. Louis, president of the Missouri State Medical Association, delivered the address, and the society decided to make application for affiliation with the state body, and elected Dr. David O. Nowlin, Montgomery, delegate. The other officers elected were as follows: President, Dr. Samuel S. Cox, Wellsville; secretary, Dr. William M. Wheeler, High Hill, and treasurer, Dr. George E. Muns, Montgomery.—The next meeting of the Missouri Valley Medical Society will be held in St. Joseph, March 18 and 19.

St. Louis

For Earthquake Sufferers.—A committee of the St. Louis Medical Society will collect funds for the relief of the earthquake sufferers. Dr. Herman Tuholske was made chairman and Dr. Meyer Wiener, secretary. An appeal for money was sent to each registered physician of St. Louis and to some St. Louis alumni societies.

Alumni Banquet.—The annual banquet of the Medical Society of the City Hospital Alumni was held January 7, at Faust's Cabin. The following are the newly elected officers of the society: Dr. Walter Baumgarten, president; Dr. John C. Falk, vice-president; Dr. William H. Luedde, secretary; and Dr. E. Lee Dorsett, treasurer.

NEBRASKA

Medical Society Meetings.—At the annual meeting of the Fillmore County Medical Association, held in Geneva, December 8, Dr. V. V. Smrha, Milligan, was elected president; Dr. Morgan Propst, Geneva, vice-president; Dr. Frederick S. Beck, Geneva, secretary-treasurer, and Dr. Royal Woods, Geneva, delegate to the state society.—At the annual meeting of Saline County Medical Society, held in Crete, Dr. Jan Cepelka was elected president; Dr. F. J. Stefskal, vice-president, and Dr. F. Brown, secretary.

Personal.—Dr. John S. Leonhardt, Lincoln, chairman of the health committee of the city council, has resigned.—The case of Marion Leidig against Dr. Elisha M. Whitten, Nebraska City, for malpractice, in which \$5,000 damages were claimed, has been settled and dismissed.—Dr. Jan Cepelka, Crete has sailed for Europe.—Dr. Henry S. Summers, West Point, has announced his intention of relinquishing practice.—Dr. G. W. Weeter, Grand Island, was struck by a passenger train while driving across the railway tracks, January 5, and seriously injured.

NEW JERSEY

Hospital Needed for Epileptic Village.—The annual report of the State Village for Epileptics shows that the institution is in need of a hospital. The patients live in cottages, segregated by sexes, and a hospital is needed for general medical purposes. There are 266 inmates in the cottages, an increase of 35 as compared with the previous year.

Personal.—Dr. Charles B. Smith, Washington, lost the sight of one eye and the other eye was seriously injured as the result of carbolic acid thrown in his eyes by an insane patient.—Dr. William J. Chandler, South Orange, fell down the cellar stairs of his office recently, breaking two ribs and one vertebra.—Dr. Henry O. Carhart, Blairstown, fractured both his legs and sustained internal injuries in a collision between his carriage and a railway train January 3.—Dr. Thomas K. Reed, Atlantic City, who has been seriously ill with gastritis, is reported to be improving.—Dr. Charles J. Craythorn, Trenton, was operated on at Mercer Hospital, December 29, for the removal of gallstones.—Dr. George J. Holms, Newark, has been appointed chief medical inspector of the board of education.—Dr. Leon Harris, house surgeon of the Orange Memorial Hospital, was operated on for septicaemia, December 16.

NEW YORK

Campaign Against Tuberculosis.—During the latter part of November, Elmira began a campaign against tuberculosis which was conducted by the State Charities Aid Association and the New York State Department of Health in connection with the Ninth New York State Conference of Charities and Correction. A series of meetings was held, which extended through the entire week.

Gift for Elmira.—Mr. and Mrs. Charles E. Rappelyea, Elmira, have furnished a suitable site and thoroughly modern well-equipped hospital for the care of persons having tuberculosis, in the city of Elmira, on condition that the hospital shall be maintained in a completely up-to-date manner by the city at public expense and that it shall be free to citizens of Elmira, except that the hospital may receive compensation for treatment therein from patients able to pay, to the extent of such ability.

Vaccination.—The New York State Department of Health has issued an illustrated pamphlet entitled "Vaccination; What It Is, What It Does, What Its Claims are on the People," prepared by Dr. Frederick C. Curtis, Albany, consulting dermatologist of the board, which describes smallpox, how to know it, the early protective measures, how it is contracted, its prevailing type, what vaccination is, its technic, the source

of virus, the efficiency of vaccination, the duration of protection by vaccination, the contraindications, complications and dangers of vaccination, the state laws regarding it, the opposition to vaccination, and its claims on the people.

Object to Civil Service Restrictions.—It is proposed by the state commission to bring within the competitive schedule all the attendants, outside workers on hospital grounds and various other minor employes whose compensation ranges from \$18 to \$100 a month with maintenance. At the hearing before the state commission there was much opposition to the proposed change from Dr. Albert W. Ferris, New York City, president of the State Lunacy Commission, and Drs. William Mabon, Richard H. Hutchings and Charles G. Wagner, superintendents of the Manhattan, Ogdensburg and Binghamton state hospitals, respectively. They protested on the ground that they now have great difficulty in getting persons to accept hospital service, and that to add civil service restrictions would make it practically impossible to get such help.

Personal.—Dr. Eugene H. Porter has been appointed State Commissioner of Health for a term of four years, and his appointment has been confirmed by the senate.—The Batavia Physicians' Club met January 5, and marched to the house of Dr. Horace S. Hutchins to pay their respects to him on the occasion of the eightieth anniversary of his birth and his completion of half a century of practice in Batavia.—Dr. Matthew D. Mann has been elected second vice-president, and Drs. John H. Pryor and DeLancey Rochester a committee on hospitals in the newly-established Buffalo Association for the Relief and Control of Tuberculosis.—Dr. Henry R. Hopkins, Buffalo, has resigned as chairman of the Erie County board of censors.—The East Aurora home of Dr. Harvey R. Gaylord, director of the New York State Cancer Laboratory, has been totally destroyed by fire.

New York City

Lecture on Living Anatomy.—Prof. Thomas M. Rotch, Harvard University, delivered a lecture to the students of the New York University and Bellevue Hospital Medical College, January 5, on "Living Anatomy, Its Practical Utility in Safeguarding the Early Life," illustrated by lantern slides and the epidiascope.

Personal.—Dr. George E. Deely, Brooklyn, has just returned after eight months in Vienna.—Dr. John D. MacLaren has been elected professor of physiology in the Medical School of the State University of Oklahoma, Norman.—Dr. Francis LaBaron, New York City, was knocked down by a street car December 21, and seriously injured.

Sea Breeze Hospital.—The association which maintains this hospital at Coney Island reports that in the last two years 50 patients have been cured there of tuberculosis of bones, glands and joints. The 41 patients now there are making satisfactory progress toward recovery. The association is waiting for the acquisition by the city of a suitable site for what is intended shall be an adequate municipal hospital for the care of non-surgical tuberculosis in children. The association has raised a fund of \$250,000 to construct the first division.

Roosevelt Ambulance Service to Stop.—At a meeting of the board of governors of Roosevelt Hospital it was decided to discontinue the ambulance service after March 1, 1909. It is believed that this action of the board was caused by the many criticisms of the hospital authorities in connection with the transferring of patients to Bellevue Hospital. Coroner Harburger says that this action was due to a verdict of a recent inquest censuring the hospital. The coroner has made arrangements with the Department of Charities to create a new district for Bellevue Hospital.

Tuberculosis Exhibit Needs Funds.—The International Tuberculosis Exhibition at the Museum of Natural History will be obliged to close at once because of lack of funds, unless \$16,000 be raised. Before the exhibition opened on November 30, plans were made for an estimated attendance of 300,000, but already an attendance of 450,000 has been recorded, and at the present rate the attendance will reach nearly 800,000. December 27 was Jewish Day, and the counters registered 63,112 visitors; the best previous record was 43,713. It is to be sincerely hoped that the desired funds will be obtained to continue this good work.

Fewer Deaths, More Births.—The report of vital statistics for the last year shows 126,863 births, a rate of 28.68 per 1,000. The number of deaths during the last year was 73,071, or 16.52 per 1,000, the lowest in the history of the city. The number of deaths was 9,249 less than the average

number for the last five years. This total was due to a decrease of 197 deaths from typhoid fever, 317 from diphtheria, 573 from tuberculosis and 3,015 of children under 5 years of age. There were slight increases in the number of deaths from measles and cancer. There were 599 more from scarlet fever and an increase of 151 in the number of suicides.

Cars and Tuberculosis.—Vice-President Hedley of the Interborough company says that they are taking every precaution to keep the cars in a sanitary condition. The old thick matting has been replaced by hard maple strips, and every night the floor of every car is sprinkled with a 5 per cent. solution of carbolic acid. The floors are then swept and after the dust has settled it is wiped up with cheesecloth. Every week the floors are scrubbed with a soft soap containing so strong a solution of alkali that it removes the paint whenever it is allowed to come in contact with it. Every month the interior of every subway car is cleaned with an emulsion which gathers up all the fine particles of dust, and every year at least, every car is painted, varnished and oiled. The straps are cleaned every night with an acid solution which will kill any germ.

NORTH CAROLINA

Personal.—Dr. James A. Hayne, Greenville, who has been a medical officer in the Canal Zone for two years, has been transferred to the sanitarium on Bogota Island, Panama Bay.—Drs. Robert L. Gibbon and Charles H. C. Mills have been made chief surgeons on the staff of St. Peter's Hospital, Charlotte.—Dr. William H. Whitehead, Rocky Mount, has been obliged to relinquish his practice temporarily on account of ill health.

Suit Compromised.—The suit brought by Dr. L. V. Cloninger, Shiloh Township, Iredell County, against Dr. E. M. Yount, in which the allegation was made that the defendant had disregarded the terms of sale by accepting professional calls in that section of the county, is said to have been compromised December 23, by the payment of \$800 to Dr. Cloninger, leaving Dr. Yount thereafter free to accept all calls in Shiloh Township.

State Hospital Reports.—The biennial report of the State Hospital for the Insane, Morganton, shows a mean death rate for the biennium, of 3.4 per cent., while the recoveries were 34 per cent. of the admissions, and the per capita expense was \$152.33. A special appropriation of \$30,000 is asked for the construction of an additional building to accommodate 100 men patients.—The annual report of the Central Hospital for the Insane, Raleigh, shows a per capita annual cost of \$167.25. During the biennium an annex has been erected at a cost of \$64,000, and two other annexes have been commenced, one of which is to accommodate 80 female patients.

OHIO

Illegal Practitioner Fined.—William Newton, Dayton, who pleaded guilty December 2, to practicing medicine without a license, is said to have been fined \$300 and costs, but the fine was suspended on his promise to take down his sign and discontinue the illegal practice.

State Medical Board Elects.—The State Board of Medical Registration has organized by the election of the following officers: President, Dr. Augustus Ravogli, Cincinnati; vice-president, Dr. Sylvester M. Sherman, Columbus; secretary, Dr. George H. Matson, Columbus; and treasurer, Dr. Edward J. Wilson, Columbus.

Academy Election.—At the annual meeting of the Columbus Academy of Medicine, held December 21, Dr. Charles J. Shepard was elected president; Dr. Jesse A. Van Fossen, vice-president; Dr. T. Alfred Fletcher, secretary; Dr. R. Blee Smith, treasurer, and Drs. James U. Barnhill and Pinkney D. Shriner, delegates to the state association.

Medical Teachers Meet.—The fourth annual meeting of the Ohio Association of Medical Teachers was held in Columbus December 28. There was practical unanimity as to the colleges in the state raising the entrance examination to include one year of literary college work in biology, chemistry and physics. The association also passed resolutions commending the State Medical Board for conducting practical examinations in biology, bacteriology and embryology, and recommended that clinical medicine be added to the list of branches in which practical examinations are conducted. The visiting members were entertained by the local teachers with a dinner at the Great Southern Hotel. The following officers were elected: President, Dr. James U. Barnhill, Columbus; vice-presidents, Drs. William E. Lewis and John A. Thompson,

both of Cincinnati; secretary, Dr. Elmer I. McKesson, Toledo; and treasurer, Dr. Charles W. McGavran, Columbus.

Cincinnati

The Eichberg Professorship.—Between forty and fifty thousand dollars have already been subscribed to establish a chair of physiology at the University of Cincinnati in honor of the late Dr. Joseph Eichberg. The entire amount needed for the endowment of the chair is \$100,000. Dr. N. Pendleton Danbridge is chairman of the committee which has the matter in charge.

Annual Meeting of Academy.—At the annual meeting of the Cincinnati Academy of Medicine, January 5, the following officers were elected: President, Dr. Rufus B. Hall; vice-presidents, Drs. Samuel E. Allen and Edward S. McKee; secretary, Dr. E. Otis Smith; treasurer, Dr. Alexander G. Drury; librarian, Dr. Arch I. Carson; censor, Dr. John E. Greice, all of Cincinnati; and trustee, Dr. James F. Heady, Glendale.

Preservation of Records.—The Western Association for the Preservation of Medical Records has been organized in Cincinnati with the following officers: President, Dr. Charles A. L. Reed; vice-presidents, Prof. John Uri Lloyd and Drs. Phineas S. Conner and Jirah D. Buck; secretary, Dr. Otto Juettner; and librarian, Dr. Alexander G. Drury. The records will be kept in the Lloyd Library pending the erection of a fireproof medical library building.

PENNSYLVANIA

Bequest to Pittsburg Hospitals.—By the will of the late George L. Laughlin, Pittsburg, \$25,000 each is bequeathed to the Pittsburg Hospital for Children, South Side Hospital, Mercy Hospital, Protestant Home for Incurables and Memorial Home for Crippled Children.

Portraits Presented.—At the annual meeting of the Berks County Medical Society, held in Reading December 8, Jacob V. R. Hunter presented to the society, in behalf of the mother and family, a portrait of Dr. Charles H. Hunter, and S. E. Kerts, in behalf of the daughter of the late Dr. Edward Wallace, presented his portrait to the society.

For a Pure Water Supply.—By direction of the State Health Commissioner, a survey is being made of the Youghogheny River watershed in Somerset County. All the houses, barns, outhouses, manure piles and every source of filth will be located on the map, along all the tributaries of the river, locating all sewers that empty into them, with a view to the proper policing of the same in order to ensure a pure water supply. There have been outbreaks of typhoid fever and diphtheria at times in the county and at present there are several cases of the latter disease in Meyersdale.

Personal.—Dr. John Todd, Pottstown, has been reappointed a member of the local board of health.—Dr. Henry Sommers, Jr., pathologist at the Norristown State Hospital for the Insane, has been appointed superintendent of Blair County Hospital for the Insane, Hollidaysburg, vice Dr. Thomas F. Neal, resigned.—Dr. Abraham S. Wilson, Bristol, is reported to be in a critical condition from valvular heart disease in the Medico-Chirurgical Hospital, Philadelphia.—Dr. Edgar M. Hazlett has been appointed medical director of the State Tuberculosis Dispensary, Washington, and Dr. T. Edmund Mills, director of the dispensary at Pottstown.

Philadelphia

Personal.—Dr. William W. Keen has been elected president, and Dr. James M. Holland, vice-president of the American Philosophical Society.—Dr. Francis X. Dercum has been elected a member of the Neurological Society of Paris.—Dr. Camillo Feo recently returned from Rome.

Tuberculosis Sunday.—Every pastor in the city has been requested by the Director of Public Health and Charities to set aside February 21 as Tuberculosis Sunday, and to make on that day a special appeal on the subject of "Tuberculosis," calling attention to the International Tuberculosis Exhibit.

Physicians Guests of Druggists.—More than 400 druggists and physicians attended a banquet and meeting of the Retail Druggists' Association of Philadelphia, December 8, at which the subject of the ethical preparation of drugs was discussed, and a number of speeches were made by prominent members of both professions showing the need of education of the laity and the lack of proper education in medical and public schools and the improvement that would result from the education of the public as regards proprietary remedies.

Deaths in 1908.—According to the report of the director of public health, the city's mortality for 1908 was the lowest

in its history. The ratio of death was only 17.16 per 1,000 of population, as compared with 18.30 per 1,000 in 1907. In only two previous years did the death rate go below 18 per 1,000, namely in 1905, when the rate was 17.25, and in 1902, when it was 17.67. The highest death rate in the history of the city was in 1872, when it reached 26.14 per 1,000, due to an epidemic of small-pox. The total number of deaths in the city in 1908 was 26,304, as compared with 27,462 in 1907, a decrease of 1,158. More than 60 per cent. of this decrease was in preventable diseases, as follows: Consumption, 4 per cent.; pneumonia, 4 per cent.; typhoid fever, 40 per cent.; diphtheria, 2 per cent.; meningitis, 80 per cent.; and influenza, 60 per cent. There was an increase of 81 per cent. in the deaths from scarlet fever, and of 257 per cent. in the deaths from measles in 1908, as compared with the previous year. The following were the principal causes of death: Tuberculosis, 3,518; pneumonia, 2,643; diphtheria, 498; scarlet fever, 181; typhoid fever, 583; influenza, 83; heart diseases, 2,473; enteritis, 1,945; pertussis, 225; cerebrospinal meningitis, 51; and measles, 232. The average death rate for the last ten years has been 18.27 per 1,000.

UTAH

Personal.—Dr. Thomas G. Odell, Murray, has been appointed physician of Salt Lake County.—Dr. Joseph S. Richards, Salt Lake City, who has been seriously ill for several weeks, has recovered and resumed practice.—Dr. Robert S. Joyce, Ogden, has been appointed division surgeon of the Southern Pacific Railway, vice Dr. George W. Perkins, deceased.

Hospital Notes.—A new hospital is to be completed and ready for occupancy at Ogden this year. The building will cost at least \$75,000, and will be in charge of local practitioners.—A permit has been taken out for the heating plant and temporary orthopedic surgery ward for the Groves Latter Day Saints' Hospital, Salt Lake City, to cost \$20,000.

Society Meetings.—At the annual meeting of the Utah County Medical Society, held at the State Mental Hospital, Provo, December 16, the following officers were elected: President, Dr. Walter T. Hasler, Lehi; vice-president, Dr. Daniel H. Calder, Provo; and secretary-treasurer, Dr. Frederic Clift, Provo (re-elected for the fifth successive year). Resolutions were adopted approving the movement to organize all existing national public health agencies into a single department under the control of a cabinet officer, and recommending steps to secure cooperation from Utah congressmen and members of the Utah State Legislature to secure uniform state and national public health laws, and to aid in the organization of a National Department of Public Health under the control of one responsible head.—At the annual meeting of the San Pete County Medical Society, held at Mount Pleasant, December 9, Dr. Charles E. West, Salina, was elected president; Dr. Burleigh C. Linebaugh, Moroni, vice-president; Dr. Margaret A. Freece, Salina, secretary-treasurer, and Dr. R. Garn Clark, Panguitch, delegate to the state medical society.—At the annual meeting of Salt Lake County Medical Society the following officers were elected: President, Dr. Augustus C. Behle; vice-president, Dr. William R. Tyndale; secretary, Dr. William Brown Ewing, and treasurer, Dr. Robert R. Hampton, all of Salt Lake City.

GENERAL NEWS AND COMMENT

Personal.—Dr. William J. Goodhue, resident physician at the leper settlement, Molokai, Hawaiian Islands, has been selected to represent the United States at the World's Leprosy Congress, which meets in Christiania, Norway, this year.—Dr. Carlos Finlay, Havana, has been appointed chief of the National Department of Sanitation of Cuba. This is a life appointment with a salary of \$2,500 a year.—Dr. Newell K. Foster, Sacramento, secretary of the State Board of Health of California, has been elected president of the Board of Health Association of the Pacific Coast, which was recently organized at Portland.

Health of Hawaii.—The report of the president of the Board of Health of the Territory of Hawaii for the fiscal year ended June 30, shows that during the year there were 2,760 deaths, or 262 less than were reported during the previous fiscal year. The annual death rate for the year being 17.92. There were 430 deaths from respiratory diseases, 367 from digestive diseases, 211 from febrile diseases, and 115 from diarrheal diseases. During the year only one case of scarlet fever was reported; there were 36 cases of diphtheria with 12 deaths; no cases of variola; 11 of bubonic plague, of which 8 were verified; 278 cases of typhoid, with 124 deaths, and 351 deaths from tuberculosis. The report of the leper settlement

at Molokai shows that in July, 1907, there were 798 inmates. During the year 78 lepers were admitted, 73 died and 3 were released, leaving 791 at the settlement June 30, 1908. The new nursery for non-leprous babies was opened this fall. Children from this institution will be transferred after they have reached the age of 1 year, either to the Kapiolani Girls' Home or the Non-Leptous Boys' Home, Honolulu. At the beginning of the fiscal year there were 217 inmates at the Oahu Insane Asylum. During the year 82 were admitted, 79 died or were discharged, leaving 220 in the institution at the close of the fiscal year. During the year 13,293 rats were examined, 11 of which were found to be infected with plague.

Jefferson Class of Seventy-nine Reunion.—A reunion of the class of 1879 of Jefferson Medical College is planned for its thirtieth anniversary. It is contemplated to hold a reception and to occupy a separate table at the Alumni Banquet, and to continue the reunion during the meeting of the American Medical Association in Atlantic City, June 8, 9 and 10. The secretary of the class, Dr. William J. Middleton, Steelton, Pa., reports that he has the addresses of about 128 of the total of 1906 who graduated, and requests information regarding the following:

Armstrong, J. Stone, N. Y.
Blunden, Boyle N., Penna.
Bowcock, John W., W. Va.
Brown, Carlos M., Cal.
Cates, Charles H., Maine.
Crawford, George W., Penna.
Eutler, George F., N. Y.
Forbee, William H., Ind.
Fowler, Warren H., N. Y.
Gardner, Charles, N. Y.
Grady, William A., Minn.
Guerero, Alfonso A., Central America.
Guzman, Virgilio, Central America.
Hale, John F., Ark.
Herron, Charles R., Fla.
Hice, Edward C., Penna.
Hickman, James W., Penna.
Holman, James A., Penna.
Hopkins, Abram C., N. C.
Hough, Thomas A., Penna.
Howard, Randolph, Ind.
Howell, Richard L., Penna.
Hort, Theodore E., Penna.
Jacob, Harry, Penna.
MacCord, George Thornton, Pittsburg.
MacCallister, Chas. H., Ind.
McClellan, R. Miller, Penna.
McClure, Frank E., Vt.

Nes, Henry, Penna.
Otway, David B., West Indies.
Page, Dudley L., Mass.
Paine, Wm. A., Penna.
Peairs, Elisha P., Penna.
Price, Allen D., Penna.
Pringle, William W., Ohio.
Rinehart, Willard E., Oregon.
Seaman, Dean, New York.
Shriner, Charles H., Penna.
Smith, Charles S., Ohio.
Smith, Harris K., Penna.
Sprowles, Isaac Newton, Penna.
Stopp, James T., Alabama.
Throop, George S., Penna.
Tomlinson, Thomas C., Delaware.
Torbert, Enos G., Penna.
Vega Francisco, Central America.
Wallen, Seely, New Jersey.
Ward, George Mason, Penna.
Waters, John, Pine Bluff, Arkansas.
Winslow, Byron, Penna.
Woodruff, George, New Hampshire.
Worsley, Edward A., Va.
Wright, J. Edward, Penna.
Zeiner, Levi S., Penna.

International Bureau of Public Health.—The International Bureau of Public Health was formally inaugurated at Paris Nov. 10, 1908, and the director and secretary were installed in office by the committee, composed of one representative from each of the countries which have agreed to support the newly created bureau. Dr. S. B. Grubbs of the P. H. and M. H. Service was the United States delegate. The idea of having a central and international office for the purpose of gathering and distributing information concerning the graver epidemic diseases, especially cholera, plague and yellow fever, was first presented for consideration at the international sanitary convention of Paris, in 1903, although it had been advocated for some time previously by many sanitarians, notably the late Professor Proust of Paris. At the request of the convention of 1903, the French government undertook the task of presenting to the nations interested propositions regarding the organization of such a bureau. These propositions were submitted in a final form in August, 1907, and a conference was invited by the government of the French Republic, at the instance of the Italian government. This conference was held at Rome, Dec. 3, 1907, the delegates signing for the governments of Belgium, Brazil, Spain, the United States, the French republic, Great Britain and Ireland, Italy, the Netherlands, Portugal, Roumania, Russia, Switzerland and Egypt. The agreement may be summarized as follows:

The high contracting parties engage to found and maintain an international office of public hygiene, of which the seat shall be in Paris. It is operated under the authority and control of a committee formed of the delegates of the contracting governments. French is the official language of the office and its monthly bulletin shall be French, but the committee may decide that parts may be published in other languages.

The expenses necessary for the operation of the office, estimated at 150,000 francs per annum, are covered by the states signatory to the convention, the contributions of which are fixed according to the following categories: (1) Brazil, Spain, United States, Great Britain, British India, Italy, Russia, at the rate of 25 units; (2) at the rate of 20 units; (3) Belgium, Egypt, and Netherlands, 15 units; (4) Switzerland, 10 units; (5) 5 units; and (6) 3 units.

The men chosen for director and secretary are distinguished in their callings, are full of zeal for the work, and will have the

earnest support of the French government, which has promised not only to recognize the bureau officially, but to give it permanent offices in the Department of Labor. It was decided that the position of director should not be restricted to medical men, as the diplomatic side of the duties will be quite as important as the scientific side. As is customary in practically all European countries, a liberal retirement privilege and pensions have been provided for the personnel of this bureau, so that the undivided efforts of their best years may be given to the work without fear for the future.

The office is under the authority and control of an international committee composed of technical representatives designated by the participating states at the rate of one representative for each state, but with a number of votes inversely proportioned to the number in the category to which it belongs as concerns its share in the expense of the office.

The committee meets periodically at least once a year, and the members of the committee receive mileage from the fund appropriated to the operation of the office and a fee for each of the sessions which they attend.

It is believed that the full exchange of ideas that will take place at the semiannual gathering of the governing committee, composed as it is of men of the highest authority and influence, will have a beneficial effect on the march of international sanitation, and that as a central clearing house of sanitary information the bureau will become of the highest importance, both in the quarantine and the internal sanitary administration of the various countries of the world. The foundations of the International Office of Public Hygiene have been laid as for an institution that is to be permanent. In organization it resembles the permanent International Postal Bureau and the Bureau of Weights and Measures, but in the field of sanitation it is original, being the result of long and persevering collaboration by men who believe that the greatest international publicity in sanitary matters is the first and most important step toward perfect sanitary control.

FOREIGN NEWS

Congress Program in Esperanto.—The program of the Eighth International Congress on Hydrology, Climatology, Geology and Physiotherapy, to be held in Algiers in April, has been published in Esperanto, in addition to the usual official languages.

Academy of Medicine Founded at Buenos Aires.—The authorities have decreed the organization of the official Academy of Medicine of the National University of Argentina. It is to consist of 25 members, with honorary and corresponding members as desired, and is to comprise three departments, biology, general medicine and surgery with gynecology and obstetrics.

Students' Number of the Paris Progrès Médical.—This important number of our French exchange contains 255 pages and supplies a fund of useful information not only for students and practitioners, but for all interested in medical education and practice, midwifery, dentistry and pharmacy in the French-speaking countries. One chapter describes the organization of medical instruction in France; another, the conditions for obtaining the medical degree, military service and exemption; another, medicine in the army, navy and colonies, and another organizations of and for medical students and practitioners, dentists, etc. Nearly a hundred pages are devoted to the medical institutions of Paris, including private educational and clinical establishments and training schools for nurses. The fourth part of the number is devoted to general professional information, laws, decrees, benefit and pension societies, syndicates, watering places and medical, dental, pharmaceutical and public health organizations, private and official. This number is far more complete than any of its predecessors; not the least interesting feature is the historical sketch and detailed description of many of the institutions, and the timely advice given to medical students and fledgling doctors on various professional subjects. The theses maintained at most of the different French-speaking medical schools are listed not only in France, but for Brussels, Ghent, Liège and Louvain in Belgium, Geneva and Lausanne and Bucharest. Particulars are also given for the medical schools at Jassy, Quebec and Montreal. The prizes offered by various institutions are also listed, with all the conditions for the competition.

The Medical Profession in the Recent Political Events in Turkey.—Remlinger of Constantinople states that medical men took a prominent part in the events which have resulted in the establishment of a constitutional government in Turkey. In a communication in the *Presse Médicale* he says that the Military Medical School at Constantinople has long had the reputation of being a focus of advanced ideas and that the list is a long one of students and physicians who have been exiled to remote regions or condemned to a hundred and one years in prison on some trivial excuse, but in reality

on account of their political activity. The recent amnesty provided pardon for all these political offenses, and it is estimated that not less than 500 physicians and medical students have been restored to freedom in consequence. A number of the physicians succeeded in escaping prosecution by flight to France and Egypt, and the Young Turk party numbered some of its leading spirits among these refugees. Chief in this group, he says, was Nazim Bey, who, under various disguises, has traveled all over the country during the last few years fostering the movement for reform. His return to Salonica, after the promulgation of the amnesty, was a triumphal ovation. The Union and Progress Committee, which is playing a leading part in the politics of the empire at present, includes several physicians whose names are known in science, Djemil Pacha, Riza Tewfik Bey and Essad Pacha. Remlinger adds that when the constitution was proclaimed, no one dared to take the initiative in its reception as a fact until the medical students headed a procession to the Sublime Porte, banners appearing as if by magic inscribed, "Science Rests on Liberty"; "The Health of the Nation is Bound up with Science," etc. He is proud of the fact, he says, that the regeneration of a great people owes so much to the medical profession.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 29, 1908.

Sudden Death After the Prophylactic Injection of Diphtheria Antitoxin

The remarkable series of cases of sudden death after injection of antitoxin recorded in THE JOURNAL during the present year were without parallel in Great Britain until the following case, which has just occurred. A girl, aged 18, had a sister suffering from diphtheria, and the physician in attendance advised the injection of antitoxin in order to avoid the risk of her catching the disease, from which she had previously suffered. When the antitoxin was injected she complained of smarting pain, and added that she was suffocating. She became worse, and in a few minutes fell from her chair and died. For several years she had suffered from asthma, and the doctor thought death was due to asphyxia from an acute attack of asthma. Dr. Collier of Oxford, ex-president of the British Medical Association, made a postmortem examination and found the lungs and cavities of the heart in such a condition as could only be brought about by sudden and extreme spasm, such as might be accounted for by an acute attack of asthma. In his opinion the injection of antitoxin started such an attack. He did not think that any one could have possibly anticipated such a result. As far as he knew no similar case had ever been recorded. In view of the great importance of the inquiry, he invited Dr. Dreyer, professor of pathology in the University of Oxford, to be present at the examination. The latter agreed with his conclusions. At the inquest which was held the jury returned a verdict that death was due to an acute attack of asthma started by an injection of diphtheria antitoxin which had been administered with proper care.

Oldest Member of the College of Surgeons

An interesting communication has been received by the Royal College of Surgeons from its oldest member, Surgeon-Major Hinton, who resides in Glenelg, South Australia. "I am," he writes, "in perfect health, walking for pleasure 5 miles or more a day." In 1835 he became a member of the college, and in 1838 he joined the Bengal Medical Staff, retiring from service in 1868. Since his retirement he has lived in Australia, the climate of which he considers conducive to longevity. He is now 95 and expresses the hope that he will live to attain the age 100.

Poisoning by Ferro-Silicon Gases

The emigrant steamship *Ashton*, bound for America, arrived from Antwerp at Grimsby with five dead passengers, Russian Jews. They were the only passengers carried and were all in good health when the vessel left Antwerp December 12. On the morning of December 13, the steward found four of them lying dead in their berths between-decks, while the fifth died within twenty-four hours. The Grimsby health officers were much puzzled as to the cause of death. The passengers' berths were between-decks directly above the forehold, with which there was a communication by a hatchway. The cargo included 9 tons of ferro-silicon. At the inquest the master of the ship declared that he had never heard of the substance before, and did not know that it gave off poisonous gases.

He had never seen the notice issued by the board of trade to mariners drawing attention to its dangerous properties and pointing out that 4 deaths had already occurred from it. The shipping agent gave evidence that the company had forborne shipping ferro-silicon in any of their steamers. Its shipment in the present case, he declared, was contrary to their instructions. The verdict of the jury exonerated the ship's officers from all blame.

Reform of Coroner's Inquests

The present system of coroner's inquests is, like many other parts of the British constitution, a relic of the feudal system which the conservatism of the English permits to survive until it has become a glaring anomaly in modern civilization. In all cases of death from violence, even when there is no question of crime or responsibility of any person, and in all cases of death from natural causes without a physician being in attendance, an inquest must be held. Last year 7,025 inquests were held in London (exclusive of the down-town district) at a cost of \$150,000, and verdicts of "death from natural causes" were returned in 3,375. Yet in each of these a full jury had to be empanelled and all the cumbrous machinery of the coroner's court set in motion. Reform of coroner's courts is to be the subject of an inquiry by a departmental committee of the home office, and which is approved by the London County Council, the Medicolegal Society and many experienced coroners. The London County Council recommends the appointment of one or more salaried medical investigators for each London district, to inquire into all uncertified deaths, assisted by responsible inquiry officers, and to make necropsies when necessary and report to the coroners, who will decide whether or not an inquest is necessary. It is also proposed to reduce the number of jurors by one-half—that is, the number is to be not less than 6 or more than 11.

Treatment of Leprosy

The secretary of state for the colonies and the government of British Guiana have arranged for Professor Deycke, late director of the Medical Military School at Constantinople, to test the Nastine treatment for leprosy at the Colony Leper Asylum at Mahaica, British Guiana. If the trial is successful the British government may have the method adopted in other British colonies.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 24, 1908.

Has a Physician the Right to Refuse to Visit a Patient?

In consequence of the difficulty experienced by Dr. Babon of Argenton in obtaining payment from a certain patient for services rendered, he wrote to the other physicians in the town informing them of the patient's refusal to settle the account. The patient thereupon brought suit against Dr. Babon for \$1,000 damages, because the doctor not only refused to give medical care to the patient and his family, but also prevented other physicians of Argenton from giving it. The court decided against the plaintiff on the grounds that Dr. Babon's letter to his colleagues contained nothing defamatory, and that, while the law of 1892 provides, in a general way, that every physician must respond to the requisitions of justice, a physician is absolutely free to refuse his services to any person whatsoever.

The case is different, however, if a physician, having promised to visit a patient, fails to keep his appointment. In this case there would be ground for action for damages against him. Similarly, the physician who, after beginning to treat a patient, abandons him without having given the necessary attention, is legally responsible for his neglect unless this was necessitated by circumstances over which he had no control.

Exciting Incidents at the Examination for "Admissibility to the Agrégation"

The opposition to the proposed diploma for advanced studies, the *certificat d'études médicales supérieures*, mentioned in my previous letter, was so pronounced that the project was abandoned and another diploma proposed in its place, entitling the holder to compete for the subordinate chairs in the medical faculties, the post of professeur agrégé. The same objections, apply, however, to this as to the other, and a referendum vote taken by the Association of former internes of the Paris hospitals resulted in 200 votes against the measure, with only 10 in its favor. The chief objection is that the

candidates will have to leave their regular work, their nucleus of a clientele, to spend two or three months a year in attendance on the competitive examinations as they are held one year at Paris, another at Lyons, another at Toulouse, and so on. Another objection is that the examinations are merely memory tests and on theoretical subjects which the candidates learned in their student days, but have had time to forget during the interval of six or ten years or more since their graduation.

The first competitive examination under this new arrangement was held December 21, but it provoked a riotous demonstration, in which not only the students, but a very large number of doctors participated. The disturbances were so serious that the president of the examining board, Professor Bouchard, sent for two detachments of the military, who were stationed around the building, something which has never before happened, at least since the republic has been established. The government is now to investigate the whole question. On the other hand, the medical organization of the Seine province has entered a formal protest against the competence of the examining board provided, the *conseil supérieur de l'instruction publique*, as it is composed mostly of professors from non-medical schools, while the few medical men on the board, the leading spirits in the medical hierarchy, are equally incompetent, as their practice among the wealthy and cosmopolitan population of Paris gives them no insight into the medical requirements of the great mass of the population, the middle and working classes and the peasants. The protest concludes by urging the authorities to invite the cooperation of medical organizations in reforming the methods of medical instruction and sanitary and hygienic regulations.

Certificate of Radiography

Some months ago, the Academy of Sciences appointed a committee to investigate the question whether or not the practice of radiography ought to be restricted exclusively to physicians. Certain members of the committee are said to favor the creation of a new diploma, that of radiography, to be given to students of medicine at the end of their preparatory year for the P. C. N. examination (physics, chemistry and natural sciences).

Oversight by Medical Syndicates of Offers of Vacant Medical Situations

Many small municipalities post in the medical schools offers of vacant medical situations, with deluding promises. There is now a movement to have such offers passed on by the local medical organizations before they are allowed to be posted in the schools, a desirable innovation, since it would furnish accurate information and prevent imposing on over-credulous young practitioners.

For and Against Absinthe

The Senate is considering a bill to prohibit the manufacture and sale of absinthe which is endorsed by more than a hundred senators of all political parties. Sixteen of the eighteen members of the committee to which the bill was referred are also in favor of the measure. The members of the Senate were not a little surprised to receive recently a voluminous report prepared by the state's attorney, the *procureur*, at Pontarlier, the center of the absinthe-manufacturing district, stating that absinthe of good quality is a harmless if not a beneficial beverage, and that the evils ascribed to it are due solely to the adulterations. This communication has elicited an energetic protest from Dr. Ledoux, physician of the hospital at Besançon, capital of the department in which Pontarlier is situated. He shows by statistics the lamentable influence of absinthe, "good" or bad, on the progress of tuberculosis, of depopulation and of insanity.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 22, 1908.

Chairs of Physiology and Hygiene in Berlin

My report that Flügge, from Breslau, would probably be considered as a successor of Rubner has been confirmed. Flügge has received the call. Meanwhile, a decision has not yet been reached, as the conditions have become somewhat complicated. Rubner wishes to retain the new institute for hygiene, lately built under his directions, as the institute for physiology, and have the physiologic institute previously used, which was built under the direction of Du Bois-Reymond, converted into the institute for hygiene. But all these changes

cost money, and therefore the final decision must be made by the minister of finance; until this is done the appointments to the chairs of physiology and hygiene are still uncertain.

Fake Honorary Memberships

For a year or two there has existed in Palermo, under the name of the Physico-Chemical Academy, a fraudulent institution which confers honorary membership on foreign scientists in return for a certain fee for the preparation of the diplomas and medals. In their craze for distinctions a large number of German medical notabilities have been victimized by this swindle, and, in spite of every warning, even certain prominent professors are now repenting for their vanity and credulity. Lately an official notice regarding the institution has been published by the Italian general consulate. According to this statement the academy with the high sounding name consists of "a motley company, which has assumed this title in order to flatter the vanity of fools." The *Deutsche medizinische Wochenschrift*, which republishes this notice, justly comments that even this announcement will not avail, as experience has shown that there always will be found scientists of reputation who will gladly pay for membership in this society.¹

The Cholera in Russia

After a transient subsidence, cholera has again flared up in St. Petersburg. This is not surprising, as we read the following statement regarding the condition of the drinking water in St. Petersburg: "The water taken from the Neva in the immediate neighborhood of the city is not filtered at all in the parts of the city on the north shore of the Neva and only partially in the rest of the city. The place from which the water is taken lies directly below large factories and hospitals which empty their entire sewage into the river without any sort of disinfection. Most of the filters have not been cleaned for fifteen years, and the filtering layer is permeated from top to bottom with foul-smelling organic slime. Samples taken from different parts of the filtering layer, as also samples of the freshly filtered water, show the presence of cholera germs, although the Neva has been frozen over for a long time. A thorough disinfection of all the water mains is now contemplated.

Robert Koch Foundation for the Campaign Against Tuberculosis

This foundation, of which I have previously spoken, has lately received an important contribution from Frau vom Rath, a lady who has already made large donations for the care of the sick, and now has given the foundation, 125,000 marks (\$30,000). The gift is to be made a special fund for research on the relations between nutrition and tuberculosis. The executive board of the foundation has been recently organized. It consists of Robert Koch, the president of the imperial board of health, the director of the institute for infectious diseases, the first court physician of the emperor, also B. Fränkel, the well-known authority on tuberculosis, von Renvers, physician in ordinary to the imperial chancellor, Mugdan, member of the reichstag, von Studt, former minister of state, privy counselor Schmidt, Frau vom Rath and Professor Schwalbe, the editor of the *Deutsche medizinische Wochenschrift*.

Drunkards Among the Habitual Criminals in the Prussian Penitentiaries

Recently published statistics again show that the habitual criminals come to a large extent from the ranks of the habitual drunkards. Between 1902 and 1905 there were in all 12,534 convicts in the Prussian penitentiaries, and of these 3,074, or 25 per cent., were habitual drunkards. It is further of interest that according to the annual report of a building trade insurance society for the district of Zürich, accidents occur most frequently on Monday, that is, the day following the more abundant consumption of alcohol on Sunday. According to these statistics, the accidents reported on Monday exceed those of all the other days of the week by 42 per cent.

The Conflict Between Physicians and the Life Insurance Societies

For some time German physicians have been treating with the life insurance societies with reference to raising the fees

1. It was written up in THE JOURNAL, June 29, 1907, page 2196, as certain physicians in America were also being informed that they had been elected honorary members.—EDITOR.

for examinations. They ask a fee of 5 marks (\$1.25) for 'he brief report rendered by the family physician, and 10 or 20 marks (\$2.50 or \$5) for the more extensive report furnished by the examiner for the company, varying according to the amount of the insurance. As the life insurance companies have refused these and other stipulations, the Leipsic League has proclaimed a strike of physicians against the life insurance companies. On this account physicians for the present are making no examinations for the life insurance companies. It is to be hoped that the quarrel will soon be settled, as by it no small injury is being done not merely to the life insurance companies, but to physicians and to the public as well.

Pharmacology

HOWELL'S MERCOL

Reid Hunt, M.D., and Atherton Seidell, Ph.D.

Division of Pharmacology, Hygienic Laboratory, Public Health and Marine-Hospital Service
WASHINGTON, D. C.

In response to a request of the secretary of the Council on Pharmacy and Chemistry, we have recently investigated a preparation known as Howell's Mercol. This is manufactured by H. B. Howell & Co., Ltd., New Orleans, and it is claimed to be a 1 per cent. solution of mercuric iodid in a non-irritating neutral menstruum, and is recommended for hypodermic use in the treatment of syphilis. A physician who gave the preparation a trial writes to the secretary of the Council as follows:

"I gave the preparation a trial—hypodermic—and found that it was absolutely painless, but immediately grew skeptical as to its strength on account of the absence of any of the physiologic manifestations of mercury, and, when given in larger doses, also failure in therapeutic results."

It seemed desirable, therefore, to determine if mercuric iodid is actually present in this preparation. The examination of three different samples, one of which had been obtained for us directly from the manufacturer was as follows:

The preparation is a yellowish, oily liquid with a slight bluish fluorescence. The specific gravity at a temperature of 20 C. was found to be 0.859; the boiling point was above 360 C. A determination of the saponification number by digestion at a temperature of 100 C., with standard alcoholic potassium hydroxid solution in a pressure bottle, gave only a trace of saponifiable fats. The "neutral menstruum," therefore, consists of mineral oil; probably commercial liquid petrolatum.

The solubility of mercuric iodid in petrolatum at 25 C. is quoted on page 199 of Seidell's "Solubilities of Inorganic and Organic Substances" as being 0.025 gm. HgI₂ per 100 gms. petrolatum ("vaselin"). It appears, therefore, that the claim for a 1 per cent. solution of mercuric iodid in a solvent composed only of mineral oil as found in the present sample is open to suspicion.

The first test which suggested itself for the detection of mercuric iodid in the sample of Mercol was simply to dissolve the preparation in a suitable solvent such as ether, chloroform, or mixtures of these with alcohol, etc., and pass in hydrogen sulphid. No precipitate being obtained in any case, attempts were made to extract the mercury salt by violently shaking the sample with strong potassium iodid solution. The resulting aqueous layer failed however to yield mercuric sulphid on passing hydrogen sulphid gas through it. These tests were also applied without success to solutions of mercuric iodid in liquid petrolatum prepared in the laboratory. The presence of the mercuric iodid in at least one of these samples, namely, that prepared by heating a mixture of the red mercuric iodid and petrolatum on the steam bath for some hours and decanting the clear hot solution, was assured, since on cooling the separate red iodid was plainly visible. Furthermore, rather large amounts of mercuric iodid dissolved in petrolatum by heating, were not precipitated by hydrogen sulphid. These experiments indicated that petrolatum when present even in relatively small amounts interferes with the precipitation of mercury as the sulphid.

After numerous experiments on Mercol and mixtures of mercuric iodid and liquid petrolatum prepared in the lab-

oratory, two satisfactory tests for the detection of the mercuric iodid were devised.

The first of these was based on the observation that a mixture of red mercuric iodid and liquid petrolatum when heated to the boiling point for several minutes in an inclined test tube yields a yellow and red deposit of mercury iodid in the upper part of the tube while the petrolatum condenses and flows back to the hot liquid below. The identity of the yellow and red deposit was established as follows: The larger part of the petrolatum was withdrawn with a pipette and the remainder removed with the aid of chloroform. A portion of the yellow deposit was then dissolved in alcohol and the solution mixed with chloroform and shaken with dilute sulphuric acid containing a few drops of a 1 per cent. sodium nitrite solution. The liberated iodine imparted the characteristic pink color to the chloroform layer. The remainder of the deposit was then dissolved in potassium iodid solution and treated with hydrogen sulphid when black mercuric sulphid separated. In order to determine roughly the limit of delicacy of this test, mixtures of mercuric iodid and liquid petrolatum were prepared and boiled in test tubes as described above. It was found that 0.0008 gm. HgI₂ in 5 gm. liquid petrolatum (=0.016 per cent. HgI₂) yielded a faint although perfectly distinct yellow deposit. It is therefore safe to assume that with 3 to 5 gm. of sample this test will distinctly show as little as 0.03 per cent. mercuric iodid. A solution of mercuric iodid in liquid petrolatum prepared by digesting for some time on the steam bath and decanting yielded the yellow deposit when a few cubic centimeters were treated as above described. A solution of mercuric iodid prepared by heating a mixture of the salt and liquid petrolatum over the flame until a clear liquid was obtained and then cooling and filtering from the separated salt gave no yellow deposit when boiled in a test tube as described. This indicates that at the ordinary temperature petrolatum holds less than 0.03 per cent. of mercuric iodid in solution. Of several samples of Mercol none gave even a trace of a yellow deposit when examined very carefully by this test.

The other test used for the examination of Mercol depends on the colorimetric detection of the iodine. For this purpose the sample is mixed with somewhat more than an equal volume of chloroform and shaken with dilute sulphuric acid to which a few drops of 1 per cent. sodium nitrite solution are added. Under these conditions the liberated iodine imparts the characteristic pink color to the chloroform layer. The limit of delicacy of this test was found to be less than 0.01 per cent. The hot solution of mercuric iodid in liquid petrolatum digested for some time on the steam bath responded immediately to this test. The cold filtered solution did not, neither did any of the samples of Mercol which we examined. It would therefore appear that the amount, if any, of mercuric iodid in Mercol is less than 0.01 per cent.

These experiments indicate that although the manufacturers of Mercol may have used mercuric iodid in its preparation, they have not succeeded in obtaining a 1 per cent. solution of this compound in their "non-irritating neutral menstruum." It is furthermore evident that the samples examined as above outlined contain none, or at most, only traces of biniodid of mercury.

Comments on the above would seem superfluous. To state that a manufacturer is grossly careless who claims to have an efficient preparation of what is almost a specific for one of the most terrible diseases known, but which contains practically none of the active ingredient, is expressing it very mildly. The following statements contained in the circular accompanying the bottles of Mercol are interesting:

"This is an ethical preparation, and, as such, the physician should have no hesitancy in using it in his practice. We desire to restrict the use of Howell's Mercol to the physician. Therefore, we do not go into minute details concerning its composition or therapeutic worth."

"The production of Howell's Mercol requires special apparatus, considerable time and some chemical knowledge. In fact, it is an extremely delicate chemical manipulation. While we do not claim to be overwise, yet, in this instance, we have done well. In view of the fact that this preparation is used hypodermically, we suggest that the physician safeguard himself and patient by using the original. Substitutes might prove dangerous."

Considering the extremely low cost of this preparation, the profits are certainly attractive, selling as it does at \$12.00 per pound, or \$1.00 per ounce.

THE INTERNATIONAL INSTITUTE

An Examination of the Results of Its "Treatment"

While the medical profession knows that the innumerable "consumption cures" that are being exploited, are all fakes, yet it is seldom possible to learn the inner workings of such concerns. To be able to follow the course of the unfortunate victims of this most heartless form of quackery, is not, as a rule, feasible. This fact is well known by the promoters of "cures" in general, and it forms the bulwark of their commercial success. For this reason the following data which we have obtained regarding the "International Institute for the Treatment of Tuberculosis" is interesting, both intrinsically and because it is typical of many similar concerns.

When the methods and personnel of the "International Institute" were discussed in THE JOURNAL of December 12, it was stated that the cases of patients "treated" by the O. E. Miller method were under investigation. The results which have come to hand, in addition to demonstrating the, not unexpected, worthlessness of the "cure," have brought to light the astounding heartlessness of which men engaged in this line of business are capable. There are cases, no doubt, of ignorant and untutored men who have put forth a fake remedy in which they themselves had faith. Such obsessions are possible though not common; just as in an earlier day there were magicians who believed in their own magic. Such individuals deserve pity rather than contempt. No such excuse, however, can be put forward in defense of the International Institute for the Treatment of Tuberculosis and those financially interested in it. The damning facts which we are about to give must, in the nature of the case, be known to the exploiters of the O. E. Miller "treatment" and doubtless in some cases on which we lack information the knowledge possessed by them but increases the grewsome obituary list which we present.

THE DUNNING EPISODE

Some light is thrown on one of the earlier episodes in Miller's attempt to get his "cure" before the public, by the following communication:

DUNNING, ILL., DEC. 22, 1908.

To the Editor:—I notice in THE JOURNAL, Dec. 12, 1908, you have given your readers some timely facts concerning O. E. Miller and his, so-called, tuberculosis cure. Permit me to add my share to the general fund of facts. In October 1907, Miller, accompanied by a Chicago physician, came to the Cook County Hospital for Consumptives at Dunning. Miller said he had a cure for pulmonary tuberculosis, and that if some of our patients would be willing to try his treatment, he would care for them free of charge. He explained that the physician who accompanied him was to be with them and administer the treatment. The matter was presented to a group of patients and ten of them accepting his offer, were taken by Miller to the Lincoln Park Hospital, Chicago, where they were "treated." One other patient joined them later. The result of the "treatment" follows:

- | | | |
|-------------------------------------|--|---|
| (1.) C. Kearney, dead. | (9.) A. Daum, and | (10) A. Martin, confined to bed by terminal tuberculosis, in Cook County Hospital for Consumptives. |
| (2.) C. Peterson, dead. | | |
| (3.) P. Carr, dead. | | |
| (4.) C. Ryan, dead. | | |
| (5.) L. Goodman, dead. | | |
| (6.) — Olander, dead. | (11.) R. Kacin, advanced tuberculosis, an ambulatory case. | |
| (7.) R. Coudek, unaccounted for. | | |
| (8.) M. J. Cronin, unaccounted for. | | |

Mr. Kacin who was with the men all the time has made a statement under affidavit, which I include with this. If in your judgment these facts will interest your readers, I shall be glad to have them published.

ERNEST S. MOORE,

Physician in Charge, C.C.H.C.

The letter of Mr. Kacin's referred to is too long for publication, but the essential facts are these: The patients were at the Lincoln Park Hospital for about three months and two of them—Kearney and Peterson—died there. One of the number—Carr—was then transferred to Magnolia Springs, Ala., and the remainder of the patients followed later. Carr died a week after his arrival and Ryan succumbed in four weeks. In closing, Mr. Kacin says: "I am familiar with the whereabouts of but three of the eleven men who left the hospital in October, 1907. . . . Messrs. Martin, Daum and myself are at present inmates of the home at Dunning. Speaking for myself, I am now in worse shape than when I left here."

And this is a group of patients which the agents for the International Institute have referred to as wonderful cures!

THE CHICAGO "SANITARIUM"

Though Miller's agents when soliciting funds for the establishment of "sanitaria" have apparently conveyed the impression that the "Institute" has a "large sanitarium in Chicago," the facts are the concern has no place of its own. Since last July the institute's patients have been given "treatment" at the Chicago Union Hospital.

The physician originally in charge of Miller's patients was a Dr. J. G. Sinclair of Chicago. Sinclair and Miller seem to have had a disagreement in September, and the former withdrew from the International Institute and has since conducted a "consumption cure" of his own, using, so his agents claim, Miller's "remarkable eliminative treatment." Of this more later.

MILLER'S PATIENTS TREATED IN CHICAGO

Since Sinclair left the "institute," Dr. E. A. Moulton—who, according to the official stationery is "house physician"—seems to have been in charge; at least his name is signed to most of the death certificates.

With the cooperation of the Chicago Health Department, we were able to obtain a list of the patients who have been received at the Chicago Union Hospital to undergo the Miller "treatment." We have followed up the history of these patients and the information received up to the time of going to press is presented in tabular form. The names of the patients and the towns (usually small) from which they came, are purposely omitted to shield the unfortunate victims from a somewhat unenviable publicity.

WHAT THE INSTITUTE HAS ACCOMPLISHED

Case.	From.	Admit.	1908.	Condition.
1	Ill.	July	17	Dead.
2	Ill.	July	20	No information.
3	Ohio	July	31	Dead.
4	Ill.	Aug.	2	Dead.
5	Ill.	Aug.	2	Dead.
6	Ind.	Aug.	4	Dead.
7	Ohio	Aug.	7	Dead.
8	Ill.	Aug.	9	Dead.
9	Wis.	Aug.	9	No information.
10	Penn.	Aug.	10	No information.
11	Ill.	Aug.	12	Dead.
12	Ind.	Aug.	17	Dead.
13	Ill.	Aug.	17	"Approaching the end."
14	Ohio	Aug.	18	No information.
15	Ill.	Aug.	27	Dead.
16	Ill.	Aug.	29	"In no sense cured."
17	Ill.	Sept.	2	No information.
18	Ohio	Sept.	10	Dead.
19	Ill.	Sept.	15	No information.
20	Col.	Sept.	16	No information.
21	Tenn.	Sept.	16	No information.
22	Ill.	Sept.	14	"Still has hemorrhages; decreased weight."
23	Ill.	Sept.	19	"Lying weak and aphonic."
24	Ill.	Sept.	19	Dead.
25	Ill.	Sept.	19	Dead.
26	Iowa	Sept.	24	"Still living; out in Arizona."
27	Ohio	Sept.	24	"Will doubtless die within a few weeks."
28	Wis.	Sept.	26	"Is in last stages."
29	Mich.	Sept.	26	Dead.
30	Ind.	Oct.	4	Dead.
31	Ill.	Oct.	4	Dead.
32	Ill.	Oct.	5	Dead.
33	Ohio	Oct.	16	Dead.
34	Ill.	Oct.	25	Dead.
35	Ill.	Oct.	26	No information.
36	Ill.	Oct.	26	Dead.
37	Ill.	Oct.	26	"Little if any change."
38	Ill.	Oct.	27	"Failing rapidly."
39	Ill.	Nov.	4	Dead.
40	Tenn.	Nov.	4	"Is no better."
41	Ill.	Nov.	9	Dead.
42	Vt.	Nov.	12	No information.
43	Ill.	Nov.	14	No information.
44	Ill.	Nov.	15	"Death looked for any time."
45	Ill.	Nov.	17	Dead.
46	Ind.	Nov.	21	Dead.
47	Ill.	Nov.	24	No information.
48	Kas.	Nov.	24	No information.
49	Ind.	Nov.	28	Dead.
50	Texas	Dec.	12	No information.
51	Ill.	Dec.	14	No information.

THE CASES NOT SELECTED

These cases, it should be remembered, are in no sense selected. They represent the official record of the Institute's roster, from July 17, 1908, to Dec. 14, 1908. The table gives, in the briefest possible way, the history of fifty-one consecutive patients subject to the O. E. Miller "treatment" for tuberculosis. Yet Miller and his associates have the blatant effrontery to publish broadcast the statement:

"Of all cases treated . . . we have effected permanent cures of over 80 per cent. including all complications."

Tables and statistics are generally dry and uninteresting, but we feel that the tabular statement given above speaks more eloquently than any sermon of "man's inhumanity to man." Here we have a list of 51 individuals suffering from tuberculosis who have been subjected to the Miller "treatment" at the International Institute and of 36 of whom we were able to obtain definite information. Of the 36, no fewer than 25 are dead; of the 11 living, 4 may be said to be in dying condition and the others are "weak," "aphonic," "very low," etc.; as the case may be. It is possible, yes probable, that of the 15 patients about whom we have no information the same proportion are either dead or dying. In any event we have positive information regarding 45 patients out of the 11 Dunning and 51 other cases investigated. Of the 45 no fewer than 31 are dead and 14 are in what may be called the terminal stage of the disease, leaving 17 patients unaccounted for.

What the "treatment" actually seems to accomplish is to hasten the dissolution of the unfortunate victim taking it. As the reports began coming in regarding the cases under investigation, it was common to find such statements as: "I believe the 'treatment' marked the beginning of his rapid decline," or "her decline was rapid afterward." This indicates that the "cure" which has been foisted on the public by a man whose only claim to medical knowledge is that he was once an advertising quack in the "rupture cure" business, is not only worthless but dangerous.

THE HARTLAND "ANNEX"

In his advertising matter Miller speaks of "our branch sanitarium in Wisconsin." This "sanitarium" was originally known as the Gray Gables Hotel, and is situated about two miles southwest of Hartland in Waukesha County, Wisconsin. The hotel, if we are correctly informed, is the property of Dr. Milton Rice, a homeopathic physician of Milwaukee, and Dr. Rice is the individual who acts as physician for the "sanitarium," spending part of his time there and signing the death certificates when necessary.

SINCLAIR'S METHODS

We have already spoken of the connection which Dr. J. G. Sinclair of Chicago had with the International Institute. The methods which he employs to secure patients for his modification of Miller's "consumption cure" are set forth in a letter we have received from a Rockford (Ill.) physician. One of this physician's patients, a widow, was called on many times by Sinclair's agent, but the woman told him that she was not interested in their cure, and besides she did not have the necessary \$350. It was recommended that she mortgage her home, and when she remarked that it was already mortgaged, the agent offered to secure a second mortgage, which she refused.

An old woman of Rockford "who makes a living by selling soap from house to house," was employed "to furnish the names and addresses of people afflicted with tuberculosis, and she was to receive \$10 for each case that she would induce to take the treatment." Our correspondent adds: "I have good reason to believe that very few cases in Rockford escaped solicitation."

Sinclair was successful in getting one Rockford patient. According to our correspondent, "they got \$100 down . . . and tied up \$250 in such a way that he [the patient's husband] despaired of having it returned." The patient grew progressively worse under "treatment" and returned home. She was to go back to Chicago just after Christmas for further "treatment," but she died on the afternoon of Christmas Day.

PHYSICIANS AS ADS

From a medical standpoint the disgraceful and disheartening part of it all is the fact that men with the right to sign M.D. after their names will have anything to do with such concerns as this. For without the cooperation of physicians, such cruel fakes as these "consumption cures" would be robbed of half their potentiality for harm. On the stationery of the International Institute we find the names of seven physicians, some of whom, at least, lay claim to reputation.

The lawyer, an ex-senator of the United States, whose name appeared on the stationery as general counsel, and to whom we referred in our former article, was evidently an innocent victim—not the first—of Miller's "philanthropy." This lawyer wrote us that he believed the concern to be composed of reputable physicians and to be conducted in the interests of charity, and so consented to give his time and services without remuneration, but that after reading our article exposing Miller and his methods, he immediately demanded that his name be removed from all their literature. He has, he says, ceased to be connected with the concern.

CONCLUSIONS

Such, then, are the methods of one of the most heartless and cruel of the innumerable "consumption cure" fakes. What such methods mean is fairly apparent from the death roll which we have published; but that is not all. It is fairly well proved and generally accepted that there is no drug "cure" for tuberculosis, and that fresh air, rest and nourishing but easily assimilated food give the only hope of recovery. The average patient with tuberculosis is not favorably inclined toward the fresh air treatment because it is of necessity slow, and there is usually connected with it certain little inconveniences which are resented. This and the well known optimistic attitude toward any new or bizarre treatment which is one of the symptoms of the disease, make the tuberculous an easy prey of the "cure" sharks. It is not hard to understand what happens when a plausible agent calls and tells of the wonderful, and practically universal, cures that the "treatment" which he represents has effected. The "fresh air treatment" is not necessary—even harmful, says Miller's pamphlet—and a four to twelve week "treatment" will bring about the much desired cure. The patient is told that the "treatment" is given under Miller's directions by registered physicians in Chicago—and here, unfortunately, the agents tell the truth.

It is then that the victim, even though warned by his regular physician, parts with the \$250 or more for the "treatment" which is to make him a well man. He is further mulcted of \$25 a week for "hospital expenses," and, though it seems unbelievable, the patient is kept at the hospital, at least in some cases, until within a few hours of dissolution. Thus is the toll of blood exacted to the uttermost, and thus are those who make a business of trading on the helplessness and ignorance of the sick financially recompensed for their efforts.

Correspondence

Esperanto as an International Language

To the Editor:—Dr. Talmey's letter on the alleged defects of Esperanto, in THE JOURNAL, January 9, page 148, demands—not for Esperantists, but for non-Esperantist physicians to whom appeal for an international language is being made—a consideration of his specific criticisms.

The value of Dr. Talmey's first criticism can be estimated by the fact that the "roofed" letters seem to have proved no impediment to THE JOURNAL's printing his communication as written. I learn that any modern printing office can add the necessary Esperanto equipment for \$2. Besides, there is the permissible substitution of *ch* for *c*, *sh* for *s*, etc., which is widely used, Dr. Talmey's opinions on esthetics notwithstanding.

His second criticism is also based on a matter of taste. Objections can be raised to Ilo on similar grounds. He cites phrases with a concurrence of sibilants. As well condemn English on account of the old schoolboy catch: "Chichester Church stands in Chichester churchyard." Also, Dr. Talmey's self-appointment as *arbiter elegantiarum* lacks confirmation.

His third and sixth criticisms are nullified by the fact that one can not compel any man to write or speak any language in any particular way. President Roosevelt recently found that out. Man will speak as he chooses, subject to the necessity for keeping his departures from custom within the limits

of intelligibility, under penalty of finding his speech useless. Nearly all words in Esperanto are regularly formed. All can and should be; for the rules for word-formation are precise, unequivocal, and unvarying, and the instance is yet to be found in which they can not be applied. The few irregular formations that have been used by inadvertence, and have thus crept into the dictionaries, will certainly be replaced by correctly formed words in due course. Take, for instance, this one cited: *Broso* has crept in for "a brush." Now, *bros* signifies the root idea of the act of brushing, *o* the termination of a noun, *il* the instrument by which any act is performed; consequently to any Esperantist *bros-il-o* can signify nothing but the instrument with which the act of brushing is performed, no matter what the dictionaries or other "authorities" may give. This reasoning applies to all the words criticized and to the very few other existing wrong formations. It further justifies the Esperantist in ignoring the plural in adjectives, as well as the accusative in both adjectives and nouns, provided he arranges his words so as to avoid ambiguity. Many good Esperantists, for instance, now say without fear of causing misunderstanding: *Alportu al mi freŝa pansaĵoj*, instead of *freŝajn pansaĵojn*. In fact, the really useful changes proposed are in line with the natural evolution of Esperanto, and it depends solely on usage (which in linguistic matters makes "authority," not vice versa) whether they shall gradually prevail. But there is no need for a new bureaucratic organization, unless to provide its promoters with a band-wagon of their own.

Against the fourth criticism I submit the following from Dr. Talmey's own text-book on Esperanto: "The ingenious inventor of the language has not created these root words anew, but has taken them entirely from the natural languages. Herein he was guided by the principle of internationality; that is, he appropriated as a foundation of the vocabulary, first, those words which are already international, as all technical and scientific terms and many other words. He further selected such words which (*sic*) are common to the greatest number of living languages."

To the fifth criticism of Dr. Talmey I again oppose Talmey himself (*ibid*): "The clearness of the Esperanto style, the immense richness of its vocabulary, and the extreme facility of learning Esperanto are due to the extensive possibility of forming new words from given roots. The number of these roots is about 2,600." He adds that "by affixes and by combining words an unlimited vocabulary can be obtained." Moreover, addition to the roots is continually going on. As to idioms, any language, to become international, must be capable of expressing any peculiar mode of thought. Where, for example, an English-speaking person might say *li eldiris* (or *ekparolis*) *krion* for "he uttered a cry," a Frenchman might say *li puŝis krion*, because he might think "*il poussa un cri*." Any Esperantist who should fail to understand the Frenchman's *puŝis krion* would be lacking, not in knowledge of Esperanto, but in common intelligence, and that no international language professes to give. Moreover, the same condition would occur equally with any other international language.

We have Dr. Talmey's own assertion that he is an "expert in this language." That is as may be. Certainly he has written a manual of Esperanto. I paid \$1 for it two years ago, to look into the language. It misled me into regarding the new language as just what Dr. Talmey now asserts it to be, namely, illogical, difficult, and impracticable. I therefore dropped it. Yet when, in 1908, circumstances compelled me to take it up, I acquired facility in it in three weeks, from a primer and vocabulary which together cost about twenty-five cents. The New York Esperanto Society, which, according to Dr. Talmey, "unanimously" adopted Ilo last November and changed its name accordingly, was at the time simply a remnant consisting of some fifteen, most of the members having retired in disgust, not as the Iloists would have us believe, with Esperanto, but with the vagaries of the bureaucratic reformers who persisted in turning practical meetings into fruitless theoretical discussions on proposed changes. They have formed a new and flourishing society and are more alive than ever. (Moreover, the "unanimous" vote, I learn, was given by only five, three voting for the change and two against it.)

Dr. Talmey, in boasting of the support of the "great scholars of international renown" composing the Committee of the Delegation for the Adoption of an International Language, omits to tell us that the president of that committee, Prof. Wilhelm Förster, of Berlin, resigned because, as he says, "the commission, overstepping the task assigned to it by the committee, and contrary to the will of eminent members of the committee, displayed towards the body of the Esperantist movement a capacious and overbearing spirit and itself attempted to disseminate a reformed tongue." Three other members—Professors Wilhelm Ostwald (Univ. of Leipzig), Baudouin de Courtenay (Univ. of St. Petersburg) and Otto Jespersen (Univ. of Copenhagen)—have resigned for similar reasons. Dr. Talmey further states that Ilo "is not simplified Esperanto." The official circular sent out by the aforesaid committee says: "In short, the *Linguo Internaciona* (Ilo) is a simplified and improved Esperanto, very similar to primitive Esperanto."

In spite of Dr. Talmey's denial, Esperanto is increasing at a greater rate, according to the returns, during the last three months than ever before, and the defections are absolutely insignificant. It numbers very many times as many adherents as all the other would-be international tongues, including Ilo, put together. That is the only argument (except ease of acquisition) that will carry weight with the "man in the street" whose adhesion is the one indispensable requisite for the attainment of the object. While Volapük really failed from its intrinsic demerits, the fact that it did fail after gaining a certain measure of success (which, however, never came within measurable distance of that attained by Esperanto) is the greatest obstacle that any proposed international language has to face to-day. The replacement of Esperanto by Ilo, or by any other of its twenty odd competitors, would only magnify this obstacle and throw back the international language idea half a century. The "man in the street" would agree with the position in 1894 of M. de Beaufront, the adapter of the Ilo variant. M. de Beaufront, then an ardent champion of Esperanto—according to him "the simplest, clearest, most flexible, euphonious and beautiful of all systems"—opposed at that time all suggested changes, even those proposed by the author of Esperanto, saying: "If after five years you find that the language must be changed, nothing guarantees us that after five years more you will not find that the new language must still be changed, and so on for ever." (This refers, of course, to *a priori* changes by a bureaucratic "authority," not to the changes that must inevitably take place in evolution, which will occasion as little inconvenience to the Esperanto-speaking people as the changes continuously taking place in English do to English-speaking people.)

To physicians contemplating taking up Esperanto I would say: "Do not be deterred by the Ilo shouting. Esperanto is miles ahead and shows no signs of being winded. Even should the impossible happen, and Ilo ultimately succeed in getting the lead, your time will not have been wasted, for any competent Esperantist can become an Iloist in a few days. I speak from practical experience. The changes in grammar can be learned in half an hour, those in roots in a few days, while the new roots would require no more labor than if they had been introduced directly into Esperanto."

Finally, at the Dresden Esperanto Congress, last August, an International Association of Esperantist Physicians was formed, with Professor Dor, of Lyons, as president, and Dr. W. Robin, of Warsaw, as secretary. The subscription is only \$1, and the members receive free the official organ, the *Voĉo de Kuracistoj* ("Voice of the Physician"). Any further information will be gladly given by

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Local Consul for U. S. A., International Association of Esperantist Physicians.

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Quarantine in Smallpox

To the Editor:—I have read with interest the paper by Dr. Bracken entitled, "The Quarantine of Smallpox," in THE JOURNAL, Dec. 19, 1908.

It is an extremely favorable sign when those who are responsible for the protection of the public health indicate a

desire to discharge their important duties with the least possible annoyance and expense to the public. This is in full accord with modern sanitation. The position taken by Dr. Bracken and Dr. Hurty, however, in connection with the discussion of the paper above referred to can not, I am sure, be endorsed by the majority of practical sanitarians. I mean those who deal personally with smallpox and other infectious diseases, and who have given the subject careful consideration.

Success in the management of outbreaks of infectious disease depends principally on constant and thorough inspection to detect promptly the presence of the sick and afterward to secure their strict isolation. The policy which Dr. Bracken and Dr. Hurty recommend can not be said to conform to this principle as it may be assumed from what they say that it is rather a matter of indifference whether or not smallpox patients are isolated, and that they recommend this departure from the usual methods as a means of enforcing more efficient vaccination. This can hardly be accepted as a scientific or safe means of securing this result, because it favors the extension of smallpox and needlessly imperils the lives of citizens.

No one who is practically familiar with smallpox and who has compared the history of its ravages prior to the time of Jenner with the conditions which followed his great discovery can doubt the inestimable value of vaccination as a protection against smallpox. However, we must not overlook its shortcomings; all the agents employed in the protection of the public health have some defects, although practically this fact does not impair their usefulness.

Smallpox does not always protect against a second appearance of the disease in the same person, neither does a successful vaccination always protect against smallpox. It is true that these exceptions do not occur frequently, and if this constituted the only uncertainty regarding vaccination, Dr. Bracken's position would be more secure. The grave mistake in depending absolutely on vaccination to the exclusion of other means of protection against smallpox lies in the fact that we do not know how long the immunity secured by vaccination continues. We do know that a single vaccination does not always insure immunity for life; for this reason we advocate and insist on revaccination, but how often revaccination should be performed is entirely theoretical notwithstanding statements to the contrary. A successful vaccination in some instances may furnish immunity for life; in others for a very brief period only, and in our zeal to enforce vaccination we should not ignore these exceedingly important facts. Unqualified statements made by public health officials that successful vaccination is an absolute preventive against smallpox furnishes argument for antivaccinationists because they know as well as we do that smallpox does occur in persons who have been successfully vaccinated and some times revaccinated. Even persons who are favorable to vaccination not infrequently cite instances in which smallpox has appeared among their family or friends, who previously had been successfully vaccinated and they can not reconcile this condition with the statements to which I have referred. In this way, the public confidence in vaccination is impaired. This would not occur if the public were taught the real value of this important agent of protection.

There are yet many ways in which public health officials can improve their means of educating the public as to the importance of vaccination. There is a natural antagonism toward it particularly on the part of a father or mother, which can not be overcome by force or legislation, but would largely disappear if persons were properly educated as to the necessity for this protection.

In public vaccination, we deal largely with uneducated persons, particularly foreigners, many of whom are brought up to believe that almost any action on the part of the authorities is antagonistic to them. Vaccination is not compulsory in this country; therefore, the success we may have in public vaccination must depend largely on careful and painstaking education.

Dr. Hurty's intimation that a community should suffer from smallpox if the people refuse to be vaccinated is hardly

in line with this policy and can not be regarded as a scientific or humane method of educating the public in this direction.

The first case of smallpox or infectious disease found in a community is not always the first one that has occurred; very mild cases often pass unrecognized and transmit the disease, and a secondary case may be the one which announces the outbreak, and other cases may be approaching the stage of invasion. Vaccination under these conditions does not offer full protection. There are also other conditions which interfere more or less in securing the full result of vaccination in a community and which practically can not always be overcome.

A careful review of this subject will demonstrate clearly that we can not abandon isolation, observation, etc., and rely entirely on vaccination for protection during outbreaks of smallpox.

In the beginning of his paper Dr. Bracken states that quarantine is an evidence of ignorance. This is not a fact. It is the improper use or rather the abuse of quarantine that is an evidence of ignorance. I assume that Dr. Bracken refers to the quarantine of well persons both at seaports and the interior who have been subjected to exposure, as I know of no one who would regard the removal of all restrictions in connection with the care and treatment of cases of infectious disease other than a menace to the public health.

Dr. Bracken refers to tuberculosis as an illustration that persons suffering from these diseases are not kept apart from the rest. It is true that at present it is deemed impracticable to place this disease under restriction, but it is not difficult for any one to understand what an enormous stride would be made toward its extermination if this could be done, and it is not at all unlikely that in the future tuberculosis will be dealt with in this manner, because such treatment would be in accordance with the principles of modern sanitation, which govern these conditions.

There are many instances in connection with outbreaks of certain infectious diseases on shipboard, and sometimes on land, where the detention of well persons who have been exposed is justifiable and reasonable. There is no doubt that in the past there has been too much detention and quarantine of suspected persons, which has unnecessarily interfered with their pursuits; and the belief that diseases are commonly transmitted by the clothing and effects of well persons has been largely responsible for this condition. However, this theory is being abandoned as indisputable evidence has been presented to show that diseases are transmitted by persons rather than things. In the future, this knowledge will justify greater liberty in dealing with those who have been in contact with the sick, particularly on land; and instead of detention or quarantine at home, we may, as a rule, substitute observation, which practically means a daily inspection for the purpose of detecting early the presence of disease, without materially interfering with the liberty of those who have been exposed.

I am sure that after a careful analysis of this subject the health authorities of other states can not consistently endorse the views or action taken by the Minnesota State Board of Health regarding the care and suppression of smallpox.

A. H. DOTY, Quarantine, N. Y.
Health Officer of the Port of New York.

Quinin Idiosyncrasy Inhibited by Morphin

To the Editor:—I wish to call attention to two subjects which I regard of therapeutic importance, and which I claim priority in reporting. My mention of the two subjects referred to is called forth by articles recently appearing in THE JOURNAL A. M. A.

The first relates to the treatment of intolerance of quinin by the administration of morphin plus atropin prior to giving the quinin or the synergists of quinin.

THE JOURNAL, Oct. 31, 1908, contains an abstract from an article by G. Nogara appearing in an Italian journal. The abstract is numbered 129, on page 1562, and reads as follows:

"Nogara reports a case of threatening acute malaria in which the necessary quinin caused convulsions with fever

whenever it was taken. After ineffectual trials of various preparations of quinin with the same disastrous results he decided to place the patient under the influence of morphin plus atropin. Under the influence of these drugs he tranquilly injected up to 15 grains of quinin without further disturbances, which promptly arrested the threatening symptoms."

In 1902, I published an article on "Difficulties in, and the Management of, Pernicious Malarial Fevers, with and Without Idiosyncrasy for Quinin" in the *Mobile Medical and Surgical Journal*. This article was copied in several other medical periodicals. The special point to which attention was called in the paper is the solving of this therapeutical problem by the administration of morphin plus atropin alone, prior to giving quinin.

I also wish to direct attention to the value of administering thymol in large doses, in punctured capsules, in amebic dysentery.

This mention is suggested by the article, "Medical versus Surgical Treatment of Amebic Dysentery" in *THE JOURNAL*, December 19. The administration of the thymol capsules must be preceded by a dose of magnesium sulphate; 20 grains of thymol are administered every two hours until three doses are given. The thymol capsules are withheld until active purging is begun and if necessary are followed by a saline purge. This treatment is repeated every second or third day, or at longer intervals according to the patient's tolerance. If necessary, this treatment may be followed by bismuth and opiates. On the day when the thymol is not given by the mouth, high colonic irrigations of thymol solution are given. Fluid diet is given throughout the treatment.

This line of treatment proved promptly effective in two serious cases in my practice and the patients have resumed work, which they had been unable to do for five or six years. Reports from these patients show increase of weight and apparent recovery, though in neither case were subsequent microscopic examinations made. As instructions were given to repeat the treatment once every week or oftener if symptoms returned. I can not assert a positive cure. I think that a report of the value of this method may lead others to investigate it in order to determine its ultimate value, and it may prove preferable to appendicostomy with irrigation.

G. H. FONDE, M.D., Mobile, Ala.

[COMMENT: Apparently Nogara had never heard of the use of morphin with quinin in malaria, as he states in his article that he thought of it, but hesitated at first to try it as he had no opportunity to experiment with it.—ED.]

Local Applications in Appendicitis

To the Editor:—Under the above heading in *THE JOURNAL*, June 27, 1908, p. 2121, there appeared an article by Dr. J. E. Moore, in which the use of the ice bag in acute appendicitis was referred to as the height of folly and as *post-hoc* reasoning.

For years I have used ice applications (preferably drain ice bags) extensively in hospital and private practice, in many acute ailments, including selected cases of acute appendicitis, and at no time has injury been observed to the regions where such applications were made.

No ice-bag application of ordinary size and kind can cause freezing of the parts applied, because the living tissues involved can never be cooled to or under the freezing point, as the ice is constantly in a melting and not freezing state (in an ordinary atmosphere with the temperature about 70 F.).

No one, of course, would use freezing mixtures, nor use such a large amount of ice as to cause a possible damage by weight, in obstructing the circulation of the parts.

It is not correct to say that the therapeutic effect of ice application is only superficial or skin deep. The application of ice to the human body means the exposure of such parts to forms of heat rays, that is to molecular and ethereal vibrations peculiar to ice in a state of liquefaction. These heat rays penetrate different media according to their nature. Some media are poor conductors, some are good. The living, human

body affords no great barrier to these "ice-rays." They are transmitted by direct continuity of tissues exposed.

Necessarily, ice applications have their limitations. The period of elimination, when established, may demand their prompt removal, the use of drugs or the surgeon's knife. But, it should be understood, that it is "no *post-hoc* reasoning" nor "height of folly" to employ an ice-bag in the proper way, and at the proper time,

Even many cases of acute appendicitis demand it and it should be considered negligence and poor treatment not to use it.

P. A. AURNES, M.D., Minneapolis.

Book Notices

THE SEXUAL QUESTION. By August Forel, M.D., Ph.D., LL.D., formerly Professor of Psychiatry at and Director of the Insane Asylum in Zurich (Switzerland). English translation by C. F. Marshall, M.D., F.R.C.S., Late Assistant Surgeon to the Hospital for Diseases of the Skin. London. Pp. 536, with illustrations. Cloth. Price, \$3.00. New York: Rebman Co.

This is an elaborate sociologic treatise that commands attention because of its fearlessness and its manifest humanity, however much some may be displeased at Forel's cynicism concerning religion. Few of us can study a sociologic subject without being greatly influenced by our habitual acceptance of many, at least, of the established dogmas of custom, society, law and religion, but this need not prevent our welcoming to the literature of this problem the contribution of one who, for purposes of absolute freedom of deduction, has attempted to disregard these dogmas.

The first part of the book is concerned with a simple and plain exposition of genesis, embryology, coitus, pregnancy, sexual characteristics and sexual appetite. Then broadening out, Forel discusses love and its irradiations, distinguishes between love and sexual impulse, and shows the various relations of both emotions to procreative instinct, jealousy, prudery, modesty, desire for domination, religion, etc. He here shows the extent of his study and the breadth of his altruism, bringing out many points that need to be borne in mind by physicians, educators, judges and in fact, by all who have dealings with their fellow men.

Then follow chapters on ethnology and history, sexual selection, sexual evolution and sexual pathology. These are refreshingly sane and free from the flippant vulgarity and unnecessary detail sometimes indulged in by writers whose familiarity with the subjects of which they write has made them forget not only the state of mind of some into whose hands the book will fall, but also their alleged purpose in writing the book. Wherever we may disagree with Forel, we must agree that he has a clean mind.

Now the book takes up the more sociologic side of the question, discussing its relation to money, property, alcohol, environment, religion, law, society, prostitution, means of preventing conception, politics, pedagogy and art. Forel proposes this general axiom: The coitus of two individuals, performed with mutual deliberation and causing no harm to a third person, should be considered as a private affair, and should have no connection with either civil or penal law. Here Forel takes a stand in opposition to custom, morals, law and religion, but it is not so bad as it sounds at first, for the third person proviso is really a very broad exception. The "third person" represents society and Forel is outspoken in the declaration that the good of society is a higher law than the right of the individual. It is interesting to note his mode of harmonizing these two demands—the rights of society and the rights of the individual—in his application of the general axiom above quoted to the problems presented by inverts and harmless pervers, whose acts are punishable under the laws of many lands. "The real crime," he declares, "is the marriage of an invert to an individual of the opposite sex, and yet this crime is sanctioned by the law!" Similarly he urges immunity from legal punishment for those forms of bestiality that are free from cruelty, as he is unable to see harm in them and as the relief afforded by them protects women and children (i. e., society) from attack by these pervers.

The work advocates as a social duty the separation of conception from the satisfaction of the sexual appetite and also, when useful or necessary, the avoidance of conception without the renunciation of sexual intercourse. "The welfare of our women and our posterity demands this consequence." To this end Forel discusses means for the prevention of conception and advocates the dissemination among the public of knowledge of the best method. His portrayal of the ignorance of men concerning the real sexual character of normal women, and the ignorance of girls concerning the sexual nature of the marital relation, lead to his emphasis of the need for parents to inform their children on the subject at the proper age.

The book is a good one for students of sociology. Its argument is not insidious, but frank. If proposals for a new basis of law and morals shock, they yet give no feeling of insincerity nor lack of study; especially is there no doubt of Forel's humanitarianism.

HIGH FREQUENCY CURRENTS. By Frederick Finch Strong, M.D., Instructor in Electro-Therapeutics at Tufts College Medical School, Boston. Cloth. Pp. 289, with illustrations. Price, \$3.00. New York: Rebman Co.

Dr. Strong begins his preface: "In all ages of which we have any authentic knowledge, and among all races, there have existed Philosophers, Investigators, or Students of the Occult, who have in divers forms, and many languages, repeatedly averred that the Universe—both visible and invisible—exemplified varied expressions of a single principle—VIBRATIONS. . . . Matter was called 'dead' or 'living' according to the reflected phenomena, and an apparently boundless gulf existed between the two. Science was becoming more and more complex, when the advance guard of a new era appeared . . . whose labors and researches have focused in the greatest discovery of any age—THE ELECTRON THEORY. . . . In the bright light which it throws on the phenomena of the universe, much that was dark and undefined has become lucid and coherent. All sciences have become united by invisible links, and we have for the first time in the history of the world a complete, harmonious system of natural philosophy, by which all facts of nature, however diverse, may be co-related and traced to a common origin."

As an introduction to a book on high frequency currents, we would say that this, to use a slang expression, is going some. It also suggests that it is the forerunner of a system of deductive therapeutic philosophy which will consider the treatment of diseases, not by painful inductions from petty clinical and pathologic observations, but from the grand viewpoint of an all-embracing therapeutic principle. Such a prospect would be entrancing, did it not suggest painful experiences with other grand therapeutic principles of the past, like Hahnemann's "Similia similibus curantur," and his dictum that most diseases arise from the itch. Dr. Strong gives further intimation of the scope of this almost universal therapeutic principle, saying: "Tesla first recognized the wonderful therapeutic possibilities of High-frequency Currents and prophesied that they would ultimately supersede the older systems based on the therapeutic use of Drugs; clinical results recorded during the past five years go far to confirm the accuracy of Tesla's prophecy."

In this work, which is apparently the second stage in the development of his system, Dr. Strong does not consider at length the therapeutic application of high frequency currents. The work is rather devoted to the physics and the technic of application of high frequency currents. This part of the work shows thoroughness and intimate familiarity with the subject and is entitled to be regarded as a good exposition of these subjects. The last thirty-five pages are devoted to a brief summary of the therapeutic applications of high frequency current in various large groups of diseases like diseases of the blood and heart, diseases of the nervous system, and infectious and malignant diseases. This part of the work appears to be hopelessly tinctured with Dr. Strong's optimism. The overweening enthusiasm and the magnificent disregard of pathology and clinical knowledge displayed in such books as this are largely responsible for the common distrust of things electrical by the medical profession.

LES DILATATIONS DE L'ESTOMAC thérapeutique des distensions gastriques. (Les Par Dene- Gaultier, chef de clinique médicale médecine de Paris. Roards, Pp. 95. Price, 1.50 francs. Paris: Librairie J.-B. Ballière et fils, 1909.

Readers of French will find in this little book an excellent presentation of this subject. The author relates fully and clearly all that is known of dilatation of the stomach. He considers its causation, the symptoms common to all causes and those peculiar to pyloric obstruction, to muscular weakness and to displacement. The differential diagnosis of dilatation due to malignant tumors and to scars, the result of round ulcer is fully discussed. The newest methods of investigation as well as the oldest and best known are described. Especially noteworthy is the description of the technic and results of examination by the x-ray. Numerous illustrations show the valuable results obtained by its use, including the possibility of differentiating thereby the various forms of gastric dilatation. The last portion of the book deals with treatment—hygienic, non-medicinal, medicinal and surgical.

BUDDHISM AND IMMORTALITY. By William Sturgis Bigelow. Cloth. Pp. 75. Price, \$0.75. New York: Houghton Mifflin Co., 1908.

In this Ingersoll Lecture, Dr. Bigelow describes the tenets of the northern, or Nepalese, Buddhists, whose sect is closely allied to the two Japanese sects, the Tendai and the Shingon. It teaches essentially the possibility of ultimate freedom from the limitations of the material world. Bigelow aptly illustrates the difference between the consciousness of will and that of sense. The ultimate object of life, he says, is to acquire freedom from the limitations of the material world by substituting volitional for sensory consciousness. The so-called necessity that seems to oppose freedom of will is made up of the limitations of personality and material existence. The difference in beings lies in the varying degrees of their realization of the universal consciousness. Bigelow explains the doctrine of reincarnation in correlation with the facts of biologic science. To all interested in moral problems the book will be useful as giving a clear glimpse of the philosophy that for centuries has governed the mental attitude of millions of people.

THE BATTLE OF THE MICROBES, December, 1908. Paper. Pp. 28. The Merchants' Association of New York.

This pamphlet consists of an introduction and two parts—the first being extracts from a paper by Clark P. Collins, the second a summary of the report of the British Royal Commission on Sewage Disposal. Collins describes the various methods, dismissing the chemical precipitation method as unavailable because of the large amount of sludge and the great cost of chemicals and labor. Sewage farming is not applicable to conditions in this country so that the method of filtration is by far the best. The separate system of conveying sewage to the place of treatment is regarded as preferable. In case sewage has to be purified the separate system is more economical. The British Commission, on the other hand, does not regard the method of chemical precipitation as obsolete. The pamphlet is well adapted to give a good view of the sewage question in general.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

DIASTASIC POWER OF SALIVA—AMYLACEOUS DYSPEPSIA (TRANSLATION)

To the Editor:—Permit me as one of the most regular readers of THE JOURNAL to speak in reference to the question of amylaceous dyspepsia and the therapeutic use of diastase, discussed in Queries and Minor Notes, Nov. 7, 1908, page 1618, as I believe that your complete denial of both conceptions goes somewhat too far.

In fact, it is a daily experience that in hyperacidity the stomach contents, an hour after a test breakfast, are imperfectly digested, which, in consideration of the high pepsin value of such contents, depends exclusively on insufficient digestion of starch. The iodine test shows that still unchanged starch, or at least erythrodestrin, is abundantly present. Even in the empty stomach remains of

bread, rice and potatoes are found, evidence that the stratification in the stomach is far from sufficient to guarantee a complete action of the diastase of the saliva.

It is not necessary to say that the insufficient digestion of the chief constituent of the food leads to abnormal fermentations, which in turn affect unfavorably the fundamental trouble in the stomach, the hyperchlorhydria (or hypersecretion). The time for the action of the diastase is all too short, if large amounts of highly acid juice are immediately poured out on the meal, for the ability of the proteins to combine with the acid and protect the diastase is quickly overcome in such conditions. I have not so far been induced to counteract this by administering diastase, but have always sought to prevent the formation of or to neutralize the acid. I can not regard it as irrational, however, to seek to utilize, as effectively as may be, by supplying diastase, in the short time during which a diastatic action is possible.

I do not understand why it is assumed that the interesting researches of Croft-Hill regarding the reversibility of the action of maltase should be brought into the field against such a therapy. Aside from the fact that these researches have reference only to the reproduction of maltose or rather of pseudomaltose from decomposition products, that is, from glucose, they apply only when the products of decomposition are able to accumulate and not, as in the stomach, where they are either absorbed or passed on into the intestine.

Finally, permit me to call attention to the fact that according to the present views, in case of reversible reactions the final result reached is entirely independent of the speed of the reaction and also of the amount of the catalytic agent, immaterial whether this belongs to the so-called ferments or not.

My conclusions from the above are that amylaceous dyspepsia actually does exist, depending not on insufficient secretion of diastase by the salivary glands, but on the premature concentration of H ions in the hyperacid stomach sufficient for complete inhibition of starch digestion. Undigested or imperfectly digested starch left in the stomach leads to the proliferation of germs of abnormal fermentation which injure the functioning of the stomach and also cause further pathologic decompositions in the intestine. There can be no theoretical objection to the attempt to compensate for the deficit of a short working period by increasing the amount of diastase, the less so as mixture of the stomach contents, even although it is probably not complete, still certainly does occur. In regard to this, new experiments on the horse from the Dresden veterinary school have been recently published in the *Zeitschrift für Physiologische Chemie*.

Whether better results are to be obtained by the administration of malt extract (malt sugar) or grape sugar (the intermediate and end products of starch digestion), or by simply neutralizing the acid, in addition to the causal therapy, need not be discussed here.

E. FULB,

157 Uhlandstrasse, Berlin, Germany.

ANSWER.—The foregoing communication seems to agree in substance with our answer to the questions concerning the therapeutic use of diastase and the meaning of "amylaceous dyspepsia," *THE JOURNAL*, page 1618, Nov. 7, 1908. In our former answer we stated that we may regard amylaceous dyspepsia to be a disturbance of the motility of the stomach, which accounts for the hyperchlorhydria, starch indigestion and abnormal fermentation. While neutralization of the acid by alkalis is valuable as a palliative measure and the use of diastase may present no theoretical objection, still if we wish to obtain practical therapeutic advantage, we must direct our attention to the etiology and pathology of the disturbance—motor insufficiency. Clinical experience has shown conclusively that in these cases, gastroenterostomy is followed by the disappearance of the hyperchlorhydria, the amylaceous dyspepsia and the abnormal fermentation, and this has also been observed in operative cases without pyloric stenosis. In non-obstructive conditions the same results may be obtained without surgical procedure by appropriate treatment directed to the motor disturbance.

So far as the application of the Croft-Hill experiments to the condition of the delay and the accumulation of the food in the stomach, we must remember that there is practically no resorption from the stomach, and the delay in the expulsion of the stomach contents into the intestines may provide favorable conditions for the application of the Croft-Hill phenomenon—the reversibility of ferment action. Of this, however, there are no experiments to prove either the negative or the positive.

Amylaceous dyspepsia is a symptom that demands, not theoretical or symptomatic treatment, but the removal of the factors that make starch indigestion and abnormal fermentation possible.

DECAPSULATION OF KIDNEYS FOR NEPHRITIS

To the Editor:—Please inform me regarding the status *præsens* of the operation of decapsulation of the kidneys for chronic nephritis.

J. LYNG, Alexandria, Minn.

ANSWER.—The value of decapsulation of the kidney in nephritis is a subject about which opinions are still divided, although, with increasing experience, the belief is steadily growing that the operation is of positive value, provided that the proper cases are selected. For the purpose of avoiding controversy, the term "nephritis" is here used to include all varieties of kidney changes, whether acute or chronic, but not the so-called surgical kidney.

Up to the present, experience is not sufficiently great to enable one to select with certainty those cases in which a good result may be attained. The operation has been tried in practically all varieties of the trouble, with results which indicate that the least is to be hoped for in those cases in which the cardiovascular changes are the most marked. Some acute cases, with and without anuria, and some more or less chronic parenchymatous cases, have been reported in which rather striking results have followed, apparently as a direct consequence of the operation. In properly selected and well studied cases, the method is worthy of consideration and more extensive application. An article by Dr. George M. Edebohls on the subject will be found in this issue. An article by George F. Suker ("The Decapsulation of the Kidneys," *THE JOURNAL*, Feb. 27, 1904, xlii, 580) contains an extensive bibliography on the subject. Articles by Müller (*Arch. f. klin. Chir.*, 1907, lxxii, 217), by Harris (*Johns Hopkins Hosp. Bull.*, 1905, xvi, 404), and by Polano (*Centralbl. f. Gynäk.*, 1907, xxxi, 13) will also be found of interest.

FRENCH MEDICAL JOURNALS

To the Editor:—Please give me a list of three or four French medical journals, with subscription prices and publishers' addresses.

FORRESTER J. YOUNG, Leesburg, Ind.

ANSWER.—The following are four good papers:

Archives Générales de Médecine. Publisher, A. Maloine, 25 Rue de l'Ecole de Médecine, Paris. Weekly. Subscription, 18 francs.
Presse Médicale, edited by F. De Lapersonne, P. Desfosses and others. Published by Masson et Cie., 120 Boulevard St-Germain, Paris, VI. Bi-weekly. Subscription, 15 francs, including postage.

Semaine Médicale, edited by Dr. De Maurans. Office, 53 Avenue de Villiers, Paris. Weekly. Subscription, 10 francs, including postage.

Revue de Médecine. Edited by P. Landouzy, 15 Rue de l'Université, Paris. Published by Felix Alcan, 108 Boulevard St-Germain, Paris. Monthly. Price, 23 francs, including postage.

VESTIGIAL ORGANS OF THE HUMAN BODY

To the Editor:—Please tell me where I can find information on the vestigial organs of the human body. C. A. NOLAN, Ogden, Ia.

ANSWER.—A discussion of vestigial organs in the embryo can be found in any extensive work on human embryology, such as Minot's "Human Embryology" or McMurrich's "Development of the Human Body." The subject is taken up more in detail in O. Hertwig's "Handbuch der vergleichenden und experimentalen Entwicklungslehre der Wirbelthiere," in three volumes and six parts (1906, Gustav Fischer, Jena). Darwin devotes a chapter to the vestigial organs in his "Descent of Man," which is good from the evolutionary standpoint. Perhaps the most complete and detailed account is to be found in R. Wiedersheim's "Der Bau des Menschen als Zeugnis für seine Vergangenheit (1893, Akademische Verlagshandlung von J. C. B. Mohr—Paul Siebeck), in which the phylogenetic and ontogenetic significance of these structures is discussed. An article by R. Wiedersheim, entitled "Organ rudimentali dell' uomo (*Riv. di sc. biol.*, Turin, 1900, ii, 801) may also be of service. All these books except the third (Hertwig's) and the fifth (Wiedersheim's "Der Bau des Menschen") can be borrowed from the library of the Surgeon General's office.

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 9, 1909:

Borden, W. C., Mearns, E. A., majors, and Webb, W. D., capt., retired from active service.

Ebert, R. G., lieutenant-col., granted leave of absence for 15 days.

Stark, A. N., major, granted an extension of 15 days to his leave of absence.

Kiersted, H. S., capt., granted an extension of 15 days to his leave of absence.

Koerper, C. E., capt., ordered to Ft. Slocum, N. Y., for duty, on return from Cuba.

Fauntleroy, P. C., major, granted leave of absence for 3 months and 15 days, with permission to go beyond sea.

Sparrenberger, F. H., M. R. C., granted leave of absence for 10 days.

Brewer, I. W., M. R. C., granted leave of absence for 20 days.

Richardson, G. H., M. R. C., honorably discharged from the service of the United States, his services being no longer required.

Bloomer, H. D., Purnell, H. S., capt., and Lincoln, H. F., LeHardy, J. C., M. R. C., Millikin, J. D., dent-surgeon, sailed from San Francisco, Jan. 5, 1909, on the *Thomas*, for duty in the Philippines division.

Morse, C. F., capt., McCallum, F. M., M. R. C., sailed from San Francisco, Jan. 5, 1909, on the *Thomas* for duty in the Hawaiian Islands.

Carpenter, Alden, dent. surg., relieved from duty with Army of Cuban Pacification, and ordered to Fort Hancock, N. J., for duty.
Hadra, Frederick, M. R. C., relieved from duty in Philippines Division, and ordered to San Francisco, for further duty.
Kress, C. C., M. R. C., granted leave of absence for 1 month.

Navy Changes

Changes in the Medical Corps, U. S. Navy, for the week ending Jan 9, 1909:

Murphy, J. A., surgeon, detached from the *Franklin* and ordered home to await orders.
Denton, F. L., surgeon, detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered to the *Franklin*.
Iden, J. H., P. A. surgeon, detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered to the Naval Hospital, Pensacola, Fla.
Hollaway, J. H., P. A. surgeon, detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered to the *Franklin*.
Backus, J. W., P. A. surgeon, detached from the Naval Station, Quantanamo, Cuba, and ordered home to await orders.
Bishop, L. W., P. A. surgeon, detached from the Naval Recruiting Station, Omaha, and ordered to the *Hancock*.
Riggs, R. E., P. A. surgeon, ordered to the *Texas*.
Robnett, A. H., asst surgeon, detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered to the Naval Recruiting Station, Omaha.
Allen, A. H., asst surg., detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered to the Naval Hospital, Las Animas, Colo.
Sellers, F. E., asst surgeon, detached from the *Texas* and ordered to the Naval Station, Key West, Fla.
R. Hayden, detached from duty with the Marines in Cuba, First Provisional Regiment and ordered to the Naval Station, Quantanamo, Cuba.
Mears, J. B., asst surgeon, detached from duty with the First Provisional Regiment of Marines, and ordered to the *Franklin*.
Plummer, G. R., acting asst surgeon, detached from the Naval Station, Key West, Fla., and ordered home to wait orders.
Campbell, R. A., detached from the *Franklin* and ordered home to wait orders.
Zulesky, W. J., P. A. surgeon, detached from the Naval Recruiting Station, New Orleans, and ordered to continue duty at the Naval Station, New Orleans.
Sellers, F. E., asst surgeon, orders of December 31 modified; detached from the *Texas* and ordered to the Naval Recruiting Station, New Orleans.
Hayden, H., asst surgeon, detached from duty with the First Provisional Regiment of Marines in Cuba, and ordered home to wait orders.
Dixon, W. S., medical director, transferred to the retired list, Jan 5, 1909, in accordance with the provisions of Section 1441, Revised Statutes; ordered to continue duty at Naval Dispensary, Washington, D. C., until further orders.
Hayden R., asst surgeon, ordered to the Naval Station, Quantanamo, Cuba.
Lowndes, C. H. T., surgeon, ordered to duty at the Naval Dispensary, Washington, D. C.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine Hospital Service for the seven days ended Jan 6, 1909:

Cobb, J. O., surgeon, leave of absence, granted Nov. 30, 1908, for 15 days from December 22, revoked.
Coser, L. E., P. A. surgeon, granted 1 day's leave of absence, Dec 31, 1908.
Goldberger, Joseph, P. A. surgeon, granted 7 days' leave of absence from Dec 26, 1908, under paragraph 191 Service Regulations.
de Valin, Hugh, asst surgeon, granted 21 days' leave of absence from Dec 30, 1908.
Ridlon, Joseph R., asst surgeon, relieved from duty at Stapleton, N. Y., directed to proceed to New Orleans, La., and report to the medical officer in command for duty and assignment to quarters, Jan 3, 1909.
Grace, John J., acting asst surgeon, granted 3 months' leave of absence from Jan 10, 1909, without pay.
Light, S. D. W., acting asst surgeon, leave of absence, granted Dec 16, 1908 for 3 days without pay, revoked.
Parker, Thomas F., acting asst surgeon, granted 5 days' leave of absence from Jan 1, 1909.
Wetmore, W. O., acting asst surgeon, granted 7 days' leave of absence from Dec 18, 1908, under paragraph 210, Service Regulations.
Wilson, J. G., acting asst surgeon, granted 1 day's leave of absence, Dec 27, 1908, under paragraph 210, Service Regulations.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan 8, 1909

SMALLPOX—UNITED STATES

Arkansas: Little Rock, Dec 15 Jan 2, 23 cases
Indiana: Lafayette, Feb 21 28, 7 cases
Kansas: Wichita, Dec 19 26, 1 case
Maine: General Canadian Border, Dec 19 26, present; St. Arthurs, Dec 29, 15 cases; Van Buren, 2 cases
Nebraska: South Omaha, Dec 19 26, 1 case
Pennsylvania: New Kingston, Dec 29, present; Philadelphia, Dec 18 25, 1 case; Pittsburg, Dec 12 19, 1 case imported
Tennessee: Nashville, Dec 19 26, 1 case
Texas: San Antonio, Dec 19 26, 1 case

SMALLPOX—FOREIGN

Arabia: Aden, Nov. 23 Dec 7, 25 deaths.
Brazil: Santos, Nov. 2 15, 2 deaths
Canada: Halifax, Dec 12-19, 1 case; Toronto, Nov. 7-14, 5 cases, Victoria, Dec. 5 12, 1 case

Ceylon: Colombo, Nov. 7-Dec 1, 25 cases, 4 deaths.
Elmhurst: Shanghai, Nov. 7 Dec 1, present.
Egypt: Cairo, Dec 2, 5 cases, 2 deaths
France: Paris, Dec. 5 12, 2 cases
Greece: Athens, Nov. 21 28, 2 deaths
India: Bombay, Nov. 24-Dec. 1, 1 death; Calcutta, Oct. 31 Nov. 7, 1 death
Italy: General, Dec. 6-13, 14 cases; Naples, 18 cases, 6 deaths
Java: Batavia, Nov. 15 21, 2 cases
Norway: Christiania, Nov. 21 28, 1 case, 1 death.
Portugal: Lisbon, Dec 5 12, 1 case
Russia: Riga, Dec 5 12, 1 case; St. Petersburg, Nov. 15 22, 7 cases; Warsaw, Oct. 31 Nov. 14, 5 cases
Spain: Barcelona, Dec. 5-12 3 deaths; Valencia, Nov. 29 Dec. 5, 5 cases, 1 death; Vigo, Nov. 28 Dec 5, 1 death.

YELLOW FEVER

Brazil: Para, Nov. 21-Dec 12, 9 cases, 9 deaths
Cuba: San Luis, Jan 1-2, 2 cases, 1 death
Ecuador: Guayaquil, Nov. 7 14, 1 death; Nov. 21-28, 2 deaths
Mexico: Cancun, Dec 12 19, 1 death, Merida, Dec 12 26, 4 cases, 2 deaths; Sodal plantation (vicinity of Merida), 6 cases, 4 deaths; Vera Cruz, Dec. 12 26, 6 cases, 3 deaths

CHOLERA

India: Calcutta, Oct. 31 Nov 7, 9 deaths; Madras, Nov. 14 20, 22 deaths
Indo China: Cholen, Nov. 9 15, 1 case, 1 death
Russia: General, Nov 15 28, 541 cases, 248 deaths
Straits Settlements: Singapore, Nov 1 14, 33 deaths.

PLAGUE

Ecuador: Guayaquil, Nov 7 28, 4 deaths; Milagro, Nov. 17 31, 11 cases, 6 deaths
Egypt: General, Nov 25 Dec 8, 145 cases, 28 deaths; Alexandria, Nov 30 Dec 7, 3 cases; Port Said, Dec. 7, 1 case
Formosa: Nov 7 14, 17 cases, 5 deaths
India: Bombay, Nov 24 Dec 1, 5 deaths; Calcutta, Nov. 1-7, 10 deaths, Rangoon, Nov 14 21, 3 deaths

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

A Fee Bill Not Unlawful

In another department appears the decision of the Iowa State Supreme Court in the habeas corpus case of W. A. Rohlf vs. Henry Kasemeier and the State of Iowa. This decision is of more than ordinary importance and interest to physicians, since it disposes of what is known as the 'Bremer County Conspiracy Case,' frequent items regarding which have appeared in the daily press during the last year and a half. The facts, briefly stated, are these:

The Bremer County (Iowa) Medical Society, at a meeting held in the summer of 1907, discussed the question of adopting a fee bill for the guidance of physicians practicing in the county. At the September, 1907, term of the Bremer County District Court, fourteen physicians of the county, nearly all the members of the county medical society, were indicted by the grand jury under Section 5080 of the Iowa Code, charged with the crime of attempting to form an illegal combination or trust to fix and regulate the price of medical services and fees.

This action of the grand jury, the first of its kind in medical history, we are informed, was due to the efforts of the state's attorney for the county, which efforts are said to have been due to the hostility of a local newspaper against the Bremer County Medical Society and medical men in general, which hostility is reported to have been one of the results of the campaign in the Iowa State Legislature for the adoption of the Food and Drugs Act. The adoption of this law restricted the business and, in some cases, eliminated from the state certain 'patent medicine' and drug companies. If they could not do business in the state, naturally they would not advertise. If they did not advertise, the receipts of certain newspapers suffer. If a newspaper proprietor lost money following the passage of the Food and Drugs Act, he naturally held the medical profession, and especially the county and state societies responsible, since they had worked most energetically and effectively for the passage of the bill. *Hinc illa lacryma!* Perhaps the state's attorney for the county had been supported by the paper in question, and possibly he was under

obligation to the editor, so that in this roundabout way the Bremer County Medical Society had to bear the punishment meted out to all men and organizations, so far as possible, who dare to incur the wrath of the proprietary medicine manufacturers.

Before the trial on the indictment could be held, habeas corpus proceedings were brought for the release of one of the physicians indicted, two points being raised in the petition: First, that a combination to fix and to regulate the price of the medical services was not a crime under the Iowa law, for the reason that medical services and medical fees are not a commodity; and second, that if they were a commodity, Statute 5060 was unconstitutional. Judge Kelley of Charles City, before whom the writ was brought, held that medical fees and services are not a commodity, and discharged the physician.

The case was appealed to the State Supreme Court, which rendered the decision referred to above, upholding the decision of the lower court that medical services are not a commodity and consequently do not come within the scope of the statute. The court further decided that the statute in question does not cover combinations to fix the price of labor of any kind, and approved the lower court's action in discharging the plaintiff.

A number of other suits incidental and subsidiary to the main case were at different times instituted and disposed of. The important point in the entire matter, however, is the decision of the Supreme Court that a medical society or a combination of physicians has the right to fix the price which its members shall be paid for their services. The Bremer County Medical Society is entitled to the congratulations of the profession on the outcome of the case.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—Second Weekly Meeting

Surgery of the Stomach (Continued)

GASTRIC AND DUODENAL ULCERS (*Continued*)

HEMORRHAGE

HEMORRHAGE FROM "ACUTE ULCER."—First symptom, no previous history, may be from peptic ulcer, "villous areas," etc.

HEMORRHAGE FROM CHRONIC ULCER.—(1) Occult hemorrhages, (2) intermittent hemorrhage, moderate amount, (3) frequently repeated, abundant hemorrhages, (4) instant, copious, lethal hemorrhage.

OPERATIVE TREATMENT.—Direct method by incision, ligation or cauterization of bleeding point. Indirect method by performing gastroenterostomy.

PYLORIC OBSTRUCTION

ETIOLOGY.—Benign and malignant tumors, fibroid degeneration of pylorus, cicatrization of ulcers, congenital hypertrophic stenosis, spastic contraction from hyperchlorhydria; inflammatory adhesions, gastroptosis, gallstones or tumors of surrounding structures.

OPERATIONS.—Posterior gastroenterostomy, technic of Moynihan, of Mayo. Anterior gastroenterostomy, Roux' operation. Gastroduodenostomy or pyloroplasty, Jaboulay, Kimmell, Villard, Kocher, Finney.

CANCER OF THE STOMACH

Diagnosis and indications for operation in (a) pyloric cancer, (b) mural cancer.

Operations, exploratory incision, gastrostomy (Sabanajew-Franck, Senn, Kader, Witzel) jejunostomy, gastroenterostomy, resection or extirpation of stomach.

GUNSHOT WOUNDS OF STOMACH

Effect of caliber and velocity of missile. Injury to other organs. Probability of infection, of spontaneous recovery. Indications for exploration; details of operation.

Marriages

JOHN D. SCOLLER, JR., M.D., to Miss Edith Husted, both of Pontiac, Ill., December 23.

WILLIAM H. GREENE, M.D., to Miss Anita Goodfellow, both of Boston, Mass., December 30.

DANIEL F. CLANCEY, M.D., to Miss Edna Kiser, both of Virginia City, Mont., December 22.

CORNELIUS COLLINS WHOLEY, M.D., to Miss Alice Douthitt, both of Pittsburg, Pa., December 28.

GUY ELLIOTT MARCY, M.D., Tacoma, Wash., to Miss Isabel Coe, of LeClaire, Iowa, December 30.

GRANVILLE EASTHAM, M.D., to Miss Mary J. Tinsley, both of Culpepper County, Va., December 24.

JOSEPH T. HORNBECK, M.D., to Miss Georgia Munn, both of Nevada, Mo., at Kansas City, November 1.

RICHARD S. HOOKER, M.D., Philadelphia, Pa., to Miss Anne H. Stam of Chestertown, Md., November 14.

CHARLES LEROY WILLIAMS, M.D., to Miss Clara Agnes Houck, both of McMinnville, Ore., December 22.

ARTHUR DUNNING MANSFIELD, M.D., Baltimore, Md., to Miss Elizabeth Ball, at Chestertown, Md., December 30.

EDWARD FITCH BRIGGS, M.D., Bedford Station, N. Y., to Miss Sue Smallwood Monroe, at Waldorf, Md., December 30.

Deaths

Charles Denison, M.D. University of Vermont, Burlington, 1869; a member of the American Medical Association; who went to Colorado from Hartford, Conn., on account of pulmonary hemorrhages in 1873, and settled in Denver, where he devoted his attention to the study of climatology with especial reference to climate and tuberculosis; for fourteen years professor of diseases of the chest and climatology in the University of Denver, and since that time emeritus professor; president of the American Climatological Association in 1890; and author of numerous monographs on the subject of climatology and tuberculosis; died at St. Luke's Hospital, Denver, January 10, from gangrene following cholecystitis, aged 63.

Joseph H. Rinehart, M.D. Starling Medical College, Columbus, 1884; a member of the American Medical Association, and vice-president of the Yellowstone County (Mont.) Medical Society; coroner and secretary of the board of health of Yellowstone County; for one term mayor of Billings; a member of the board of U. S. Pension Examining Surgeons, and local surgeon for the B. and M. Railway; one of the oldest and best known physicians of Billings; from 1890 to 1892, a resident of Ballard, Wash., and member of the state legislature from King County, died suddenly, from heart disease, in his office, December 31, aged 59.

Charles F. Kieffer, M.D. Jefferson Medical College, Philadelphia, 1891; who entered the medical corps of the army as assistant surgeon in 1891, served through the Spanish-American War as major-surgeon of the Forty-eighth U. S. Infantry; and was retired from the army at his own request early in 1908, and settled in Cheyenne, Wyo.; a member of the American Medical Association; and a surgeon and administrative officer of great ability and promise; died in St. John's Hospital, Cheyenne, December 30, four days after an operation for appendicitis, aged 39.

Lawrence Darling Knowles, M.D. Bellevue Hospital Medical College, New York City, 1876; a member of the American Medical Association; Association of Military Surgeons of the United States, and Kalamazoo Academy of Medicine; major and surgeon of the Thirty-second Michigan Infantry, U. S. V., during the Spanish-American War, and later promoted to lieutenant-colonel; a member of the state board of U. S. Pension Examining Surgeons; died at his home in Three Rivers, Mich., December 29, from angina pectoris, aged 59.

Edward C. Lewis, M.D. Jefferson Medical College, Philadelphia, 1862; for several years president of the board of trustees of the Children's Home, and surgeon for the Cleveland and Pittsburg and Cleveland and Marietta railroads at Canal Dover, Ohio; in 1873 representative from Tuscarawas County in the state legislature, and later state senator for one term from the eighteenth district; died at his home in New Philadelphia, January 3, from cerebral hemorrhage, aged 64.

William G. Weaver, M.D. University of Pennsylvania, Philadelphia, 1878; a member of the American Medical Association and National Association of Railway Surgeons; supreme medical examiner of the Fraternity of Home Protectors; a member of the surgical staff of Wilkes-Barre City Hospital and Mercy Hospital; for twenty-nine years a member of the school board; major and surgeon Ninth Infantry, N. G. Pa.; local surgeon to the Lehigh Valley R. R.; died at his home in Wilkes-Barre, December 28, aged 62.

Thomas D'Arcy Sharkey, M.D. Medical College of Ohio, Cincinnati, 1893; a member of the American Medical Association, and Union District Medical Society; city physician of Hamilton, Ohio, and a member of the local board of pension examining surgeons from 1895 to 1898; a member of the Hamilton city council from 1896 to 1898; and coroner of Butler County from 1901 to 1905; died suddenly at his home in Hamilton, January 2, from acute gastritis, aged 42.

William Nevin Hill, M.D. Washington University, Baltimore, 1874; of Baltimore; a member of the Medical and Chirurgical Faculty of Maryland; well known on account of his efforts to exterminate the mosquito and to reclaim the swamp lands of Maryland; secretary of the National Drainage Congress; died at the Shepard and Enoch Pratt Hospital, near Towson, Md., from brain tumor, December 25, aged 51.

Henry A. C. Anderson, M.D. Bellevue Hospital Medical College, New York City, 1870; of New York City; a member of the Medical Society of the State of New York; formerly president of the United German Societies of New York; bacteriologist of the health department in 1898 and 1899; died suddenly from heart disease, January 5, in a cafe in New York City, aged 70.

John Gladden Johnson, M.D. University of Heidelberg, 1869; a member of the Michigan State Medical Society; for many years professor of nervous diseases in Detroit Medical College; attending physician to St. Luke's Hospital and St. Joseph's Resort for the Insane, Detroit; died from heart disease, at his home, December 31, aged 65.

Alice Boole Campbell, M.D. New York College and Hospital for Women, New York City, 1867; one of the founders of the Eastern District Hospital, and Woman's Hospital; a member of the governing board of the New York College and Hospital for Women; died at her home in Brooklyn, December 31, from angina pectoris, aged 72.

Joel Whitney Bonney, M.D. Missouri Medical College, St. Louis, 1858; formerly of Quincy, Ill., and a member of the state legislature, but for eight years a resident of Pacific Grove, Cal.; died at the home of his daughter in East San Jose, Cal., December 9, from pneumonia, aged 82.

James William Tankard, M.D. Washington University, Baltimore, 1869; a member of the American Medical Association, and for 35 years a practitioner of Lillian, Va.; died in the University Hospital, Baltimore, December 31, five days after an operation for abscess of the liver, aged 62.

Edwin Smith Belden, M.D. Bellevue Hospital Medical College, New York City, 1867; of Oakland, Cal.; formerly a contract surgeon in the army, but of late years a court stenographer of San Francisco; died suddenly, December 29, at Glen Ellen, Cal. from heart disease, aged 65.

Thomas Bernard Dwyer, M.D. New York University, New York City, 1888; a member of the Medical Society of the State of New York; a specialist on diseases of the ear, nose and throat; of Syracuse, N. Y.; died suddenly from heart disease, in that city, January 1, aged 51.

Thomas Emory, M.D. University of Virginia, Charlottesville; surgeon in the Confederate Navy during the Civil War; for many years a business man of Syracuse, N. Y.; died at the home of his nephew in Annapolis, Md., August 31, from cerebral hemorrhage, aged 64.

B. Rush Holcomb, M.D. Albany (N. Y.) Medical College, 1864; a member of the Medical Society of the State of New York; assistant surgeon of N. Y. volunteers during the Civil War; died at his home in Whitehall, N. Y., December 31, aged 68.

Loren Perle Lee, M.D. Starling Medical College, Columbus, 1903; a member of the Ohio State Medical Association; was accidentally shot and killed while examining an automatic revolver at his office in Rutland, Ohio, December 30, aged 33.

Charles William Eddy, M.D. Miami Medical College, Cincinnati, 1877; a member of the Ohio Pediatric Society and American Association of Life Insurance Examiners; died at his home in Marietta, Ohio, December 28, aged 55.

Charles M. Brasted, M.D. University of Buffalo, N. Y., 1881; of Hornell, N. Y.; a member of the American Medical Association; died suddenly from heart disease, January 1, while making an emergency call in Hornell, aged 50.

James John O'Sullivan, M.D. Western Pennsylvania Medical College, Pittsburg, 1906; assistant professor of hygiene in the University of Pittsburg; a noted athlete; died in Denver, December 26, from heart disease, aged 23.

Morris May, M.D. Medical College of Ohio, Cincinnati, 1895; of Cincinnati; a member of the Ohio State Medical Association; died at the Bethesda Hospital, Cincinnati, December 27, from diabetes, aged 37.

Sidney S. Wood, M.D. Jefferson Medical College, Philadelphia, 1855; formerly a practitioner of St. Joseph, Mo., and New Orleans; died at his home in Orange, Cal., November 27, from uremia, aged 83.

Isham S. Talbot (years of practice, Mo.); a practitioner of Easton, Mo., for 47 years, died at his home, December 6, aged 70.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, Jan. 26.

AMERICAN ROENTGEN RAY SOCIETY

Ninth Annual Meeting, held at New York, Dec. 28-30, 1903

The President, DR. EUGENE W. CALDWELL, New York, in the Chair

Officers Elected

The following officers were elected: President, Dr. George C. Johnston, Pittsburg; vice-presidents, Drs. William Allen Pusey, Chicago, Sydney Lange, Cincinnati, A. W. Crane, Kalamazoo, Mich., W. L. Newcomet, Philadelphia, and H. W. Van Allen, Springfield, Mass.; secretary, Dr. Percy Brown, Boston; treasurer, Dr. Charles F. Bowen (re-elected), Columbus, Ohio; executive committee, Drs. Henry K. Pancoast, Philadelphia, Alfred T. Osgood, New York, and F. H. Baetjer, Baltimore.

The next annual meeting will be held in Detroit, the time to be determined later.

Value of Roentgen Ray Examination

DR. GEORGE H. STOVER, Denver: The fluoroscope should be dismissed from consideration as a means of diagnosis because it is only rough and approximate in its information, and it is not a permanent record which may be studied at leisure under regulable conditions and preserved for future use, either in the study of the progress of a case or as a basis of medicolegal evidence. The radiograph alone is worthy of consideration. Prints or plates should not be given to a patient because he is likely to misinterpret it, a fact which is likely to prove disastrous in the case of an impressionable patient. Furthermore, the patient is sent to the radiographer for an opinion as to his condition, and not for a picture of himself. Neither should skiagrams be exhibited to a jury, because its members are not capable of reading a skiagram or of interpreting correctly what it shows. Also, too much weight is given to the plate, because as a general proposition visual impressions are more powerful than auditory ones. The radiographer should render his opinion to the physician who referred the case, preferably by demonstrating the skiagram to him.

DISCUSSION

DR. A. L. GRAY, Richmond, Va.: It is important to make a skiagram of every case of injury so that the evidence shown may be used in case of suit; but the plate should not be exhibited to the jury; nor should a print be given to the patient.

DR. M. K. KASSABIAN, Philadelphia: I believe that the skiagram is a most valuable evidence in court because it is a tangible thing, one which can be demonstrated to judge and jury, and which forms indisputable evidence.

DR. GEORGE H. STOVER, Denver: Too often patients pass around among their friends a radiograph which they consider in the same light as a portrait, thus detracting from the real value of the radiogram.

Roentgen-Ray Diagnosis of Osteitis Fibrosa

DR. S. CUMMINGS, Toronto, Can.: This disease, first described by von Recklinghausen, is essentially a disease of the bone marrow, which may be localized in a single bone or may invade the entire bony skeleton. The normal bone marrow is replaced by fibrous or lymphoid material, and the bone itself by osteoid tissue with the formation of cavities or cysts. The continuity of the bone is not interrupted, unless a fracture occurs. Prior to the introduction of the Roentgen ray as a diagnostic agent, the disease was rarely recognized, and it is extremely probable that many cases of so-called fragilitas ossium were really cases of osteitis fibrosa.

Roentgenographic Study of Motion in Viscera

DR. CHARLES LESTER LEONARD, Philadelphia: By means of the radiograph it is possible to make such rapid exposures that there are registered the individual phases of the visceral shadow on the plate; the forms of the viscus in each phase of its normal or pathologic motion can be studied at leisure and by means of reconstruction. Dilatations and hypertrophies of the left auricle and right ventricle which escape all other means of diagnosis can thus be detected. Small aneurisms and dilatations of the aorta can be recognized, and often the pulse wave can be shown differentiating these conditions from mediastinal growths. The varying positions of the diaphragm may be noted and interpreted correctly as evidences of disease. Probably the most valuable field for the study of visceral motion will be found in the gastrointestinal tract. Fortunately, the movements of the viscera are not so rapid that they make necessary very short exposures to eliminate their motion.

The Roentgen Ray in the Diagnosis of Carcinoma of the Stomach

DR. GEORGE E. PFAHLER, Philadelphia: My remarks are based on a study of 29 cases in which evidence of carcinoma was clearly demonstrable, and in most of which the diagnosis was confirmed by operation, autopsy or the subsequent clinical course of the case. In the majority of these cases the tumor was not definitely palpable, or not at all, and in all the cases the rays not only located the tumor, but disclosed its extent. The evidences of carcinoma of the stomach usually consist of changes in the course of the food through the stomach or changes in the outline, position, mobility or peristaltic movements. I am convinced that by this means a diagnosis can be made before it is possible with any other means at our disposal.

Roentgen-Ray Evidence in Gastric Ulcer

DR. A. W. CRANE, Kalamazoo, Mich.: I have found that the x-ray is extremely valuable in diagnosing gastric ulcer when other means of diagnosis fail. The diagnostic factors are (1) size, (2) form, (3) position of the stomach, (4) its clearance of food, (5) the location of the pain marker, the latter consisting of a leaden letter "P" which is placed over the seat of pain. This may locate the seat of the pain in the pylorus, the fundus, the pancreas, duodenum or other portion of the small intestine, thus differentiating the case nicely. The globular and contracted form of stomach are distinctive of ulcer.

Radiographic Examination of Gastrointestinal Tract

DR. HENRY K. PANCOAST, Philadelphia: Characteristic alterations in the position of the stomach and the descent of the greater curvature considerably below its normal level are sufficient data on which to base a diagnosis of gastroptosis in the majority of instances. The skiagraph is useful in indicating the anatomic defects most in need of correction, or those whose correction is most likely to be followed by favorable results, and in suggesting the most appropriate measures to employ. It is also important to determine the position of

the liver and of the colon. The success of an operation may be greatly impaired through failure to observe the position of the colon. The colonic displacement is likely to be relatively greater when it has arisen independently and is an essential factor in causing the gastroptosis. It is impossible to radiograph adhesions, but their presence and their location may be indirectly suggested in many instances, particularly when they involve the transverse colon. It is essential that the radiographer be familiar with the various operations employed in the treatment of gastroptosis in order that he may be able to recognize whether any operative procedure is indicated, and if so, which one. Among the indications for operation are marked gastric dilatation, retention of food, and evidence of a mechanical kink and of a relaxed gastrohepatic ligament.

Expectant Treatment of Old Sinuses

DR. ARTHUR HOLDING, Albany, N. Y.: I inject into the sinus an aseptic suspension of bismuth subnitrate, one part, in petrolatum, two parts, using an aseptic glass syringe of large capacity. Then I make a skiagraph of the parts. This may be done stereoscopically to good advantage. Having determined the course of the sinus, a copper wire electrode is fashioned so that it can be inserted to the bottom of the sinus. This is attached to the positive pole of a galvanic current and the sinus is treated as often as is necessary in order to remove scar tissue, stimulate granulations and render the tract aseptic. When the discharge is controlled, the sinus is ready for injection with a mixture consisting of equal parts of bismuth and iodoform to two parts of petrolatum and soft paraffin. In my experience, this method of treatment has proved satisfactory.

DISCUSSION

DR. CHARLES L. LEONARD, Philadelphia: For outlining the sinus tract with the x-ray, iodoform is as useful as bismuth, being metallic.

DR. GEORGE C. JOHNSTON, Pittsburg: In the Children's Hospital in Pittsburg the bismuth-petrolatum injection has been used considerably and with much satisfaction, a cure having been effected in many old cases that had resisted all other methods of treatment.

DR. H. W. VAN ALLEN, Springfield, Mass.: I do not think that it is necessary to use the copper wire, these sinuses healing very rapidly following the injection of bismuth and petrolatum.

DRS. H. W. DACHLER, Toledo, Ohio, and S. CUMMINGS, Toronto, reported cases of bismuth poisoning following the use of the bismuth-petrolatum paste.

DR. ARTHUR HOLDING, Albany: The results following the use of the paste are better if the sinus tract is first rendered aseptic by means of the galvanic current, and therefore I always use the copper wire before making such an injection.

(To be continued)

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

*Eighteenth Annual Meeting, held at Minneapolis,
Dec. 29 and 30, 1908.*

(Continued from page 159)

Chronic Dilatation and Prolapse of the Stomach

DR. ARTHUR E. BENJAMIN, Minneapolis: Dilatation of the stomach is now engaging the attention of the medical and surgical world. Recent investigations have demonstrated that reported deaths due to heart failure, gastralgia, acute indigestion, and so forth, in some instances may have been due to acute dilatation of the stomach. The various terms applied to this condition, such as gastromesenteric ileus and postoperative gastric paralysis, indicate that the pathology, etiology and *modus operandi* are not thoroughly understood. Chronic dilatation and prolapse of the stomach are often interdependent and associated, and as possible antecedents of an acute dilatation they must be recognized. They should also be considered as factors in the causation of ulcers or

cancer. The causes for dilatation and prolapse may be similar, and primarily are often due to indiscretion in diet, followed by weakened gastric support, motor insufficiency, or partial obstruction. The exact nature and variety of the ptosis or the dilatation should be determined, if possible, by x-ray and other means. Symptoms actually due to chronic dilatation or prolapse are frequently termed hysteria, neurasthenia or nervous dyspepsia. Acute upper abdominal pain or attacks of vomiting are often misinterpreted; they are frequently due to acute pyloric or duodenal obstruction and gastric distention. Hyperchlorhydria, postoperative vomiting and vomiting of pregnancy may be dependent on the presence of chronic dilatation or prolapse of the stomach. The treatment should depend on the conditions found. Simple cases are often amenable to medical and mechanical means, such as diet, exercise, mechanical support, and hygiene. Certain patients should be operated on, especially those with actual pyloric or duodenal obstruction or dilatation of the sagging type, and other aggravated cases not relieved by medical means. The tubulous types of prolapse need no operation. Some cases are dependent on an associated visceroptosis and relaxed abdominal walls. These should be properly treated to bring about the relief dependent on such a general prolapse. In the sagging types the Beyer operation, either alone or supplemented by the Coffey operation, if there be an associated sagging of the transverse colon, should be done. Chronic dilatation of the stomach not dependent on obstruction and when not otherwise relieved is greatly benefited and often cured by the Bircher operation of plication. In chronic dilatation, dependent on a benign pyloric obstruction, a short loop gastroenterostomy should be performed. Obstruction or dilatation dependent on malignant growths may call for a pylorotomy. In operating, a careful search should be made for any other points of chronic bowel obstruction, as from disease of the gall-bladder, appendix, or from a kinking colon. These conditions may add to digestive disturbances, and should be corrected at the same time. All patients operated on should be followed for some time and the subsequent treatment carefully managed.

The Surgical Importance of the Intestinal Gases

DR. BYRON B. DAVIS, Omaha, Neb.: The points that practical surgeons need especially to have in mind are (1) to have as little fermentable substance as possible in the intestines before operation; (2) to do as little as possible during the operation, which will interfere with the normal circulation in the intestinal wall—this can probably best be prevented by a minimum amount of handling and resulting trauma; (3) to leave the intestines in the best condition for active peristalsis; long exposure and much cooling are inimical to active peristalsis.

Dilatation of the Stomach

DR. D. S. FAIRCHILD, Des Moines, Iowa, read a paper in which he discussed postoperative acute dilatation of the stomach.

Discussion on Dilatation of the Stomach

DR. R. C. COFFEY, Portland, Ore.: There are able men who consider prolapse of the stomach a non-surgical condition, while others believe that it is a surgical condition under practically all circumstances. From my experience I should say that there is a happy medium in this, just as there was a few years ago in gastric surgery of other kinds. One will not go to any important clinic in the country to-day and see gastroenterostomy performed for gastric ulcer and the ulcer will be easily demonstrated, and the scar is easily shown to the onlooker. It can be demonstrated not only to the surgeon himself, but to those who are looking on. Not more than 25 per cent. of the cases of prolapse of the stomach, as seen by the internist, have any surgical features. Probably not more than one in five has any surgical features, but the fact remains that a certain number do have surgical features and the results of surgical treatment are practically as good as in gastric ulcer. In a series of cases of last year's surgical work, of 29 stomach operations, 14 were for cancer, 10 for obstructive gastric ulcer, and 4 were for prolapse of the stomach.

DR. DANIEL N. EISENDRATH, Chicago: During the past few years at the Michael Reese Hospital, Chicago, special attention has been paid to acute cases of dilatation in order to determine the cause. It was found in a large proportion of cases that the direct cause of the acute dilatation of the stomach was repeated capillary hemorrhages, and this has been substantiated by examination of the washed contents and by other tests, showing that the hyperacid contents were bloody. There is no hematemesis in the sense that it comes from a gastric ulcer or from gallstone complications. During August I operated on a man who, in addition to appendicitis, had an acute gangrenous cholecystitis complicating gallstones. Everything went smoothly for thirty-six hours. The patient was happy, sat up in bed, and passed some flatus, so that I felt that there was no indication of peritonitis. Suddenly he began to vomit typical coffee-ground material in pint quantities at a time. He had rapid pulse, with extreme prostration. On washing out his stomach this typical coffee-ground vomit was found, which on analysis was blood. The diagnosis was made from the physical examination of the abdomen.

DR. CHARLES H. MAYO, Rochester, Minn.: If the internist picks out one case in twenty-five and sends it to the surgeon he would operate probably on one in five, which would be one in a hundred and twenty-five that presented symptoms. If the stomach becomes large, and is able to do its work, and to empty itself, it is probably not a surgical condition. If the pylorus is open, and there is no kinking of, operation may not be necessary. At Rochester we have done gastroenterostomies in cases in which there was kinking of the pylorus. In cases of enlarged stomach we have been asked whether or not we drained. We have never drained unless there were really obstruction or signs of obstruction by the retention of food. If the stomach is dilated, and yet still able to do its work, look for the condition which may be behind it. This may be a chronic congestion of some of the vessels.

DR. JABEZ N. JACKSON, Kansas City, Mo.: Some years ago I had two unfortunate experiences. In each instance I had a patient who belonged to that class of people in whom there was a marked disturbance of metabolism previous to operation, as evidenced by change in the color of the skin, flabbiness of the complexion, and general laxity of the tissues. These patients consumed an unusual amount of the anesthetic. I have therefore come to believe that probably the primary cause in most cases is a disturbance of the metabolism which is increased as the result of the toxic influence of the excess of anesthetic, and in recent years, since I have adopted the open method of administering ether, and giving it in small quantities, this trouble has disappeared, and while I have occasionally seen the early signs and symptoms of beginning acute intestinal dilatation, yet apparently they have not been attended with the fatal results which previously occurred.

DR. J. W. ANDREWS, Mankato, Minn.: I am reminded of the case of a woman, past middle age, with malignant kidney of sufficient size to bulge forward to a considerable extent, and which I removed through the peritoneal cavity. The patient did well for about ten days, then acute dilatation of the stomach occurred, commencing by vomiting of coffee-ground material. The patient died, and at the postmortem examination I found the largest dilated stomach I have ever seen. It was so enormously dilated that it reached to the brim of the pelvis. During the past year there has been a severe epidemic of typhoid in Mankato, with several cases of acute dilatation of the stomach accompanying it. In these patients the stomach was enormously distended; but the intestines were no more distended than usual in typhoid, yet every one of those patients died from acute dilatation of the stomach. Whether or not the cause was due to the hemorrhage spoken of, I do not know. At any rate, it is an extremely fatal condition.

DR. M. L. HARRIS, Chicago: In chronic dilatation of the stomach I have come to classify the cases under two heads, those in which there is mechanical obstruction and in which surgical interference is the proper treatment, and those in which there is no mechanical obstruction. It is doubtful, in my opinion, whether in the latter condition patients are benefited by operative measures. I have never seen any good reason for the plication of a dilated stomach. If a stomach is dilated as the result of mechanical obstruction, plication is

useless. If it is dilated not from mechanical obstruction, but from atony or any other condition, the plication will interfere with vermicular action.

DR. HENRY T. BYFORD, Chicago: A dilated stomach is different from a normal stomach. If the normal intestine be plicated it will interfere with its function, and if the stomach be plicated it will interfere with its contraction. There is a pouch, it hangs down, and can not relieve itself, and if it is a surgical case we can not very well diminish the contractile power of the stomach. In such a case, if we can bunch it up, relieve the pouch, help drainage through the duodenum, and help the physical condition, we are establishing temporarily postural treatment, thus giving the stomach a chance to empty itself, and as probably the adhesions will stretch after a while, we have not injured the stomach; we have not injured motility which does not exist.

(To be continued)

CALIFORNIA ACADEMY OF MEDICINE

Regular Meeting, held in San Francisco, Nov. 24, 1908

The President, DR. HOWARD MORROW, in the Chair

Anaphylaxis

DR. G. W. MCCOY, U. S. P. H. and M.-H. S.: It has long been known that a foreign serum injected into an animal is apt to give rise to certain symptoms and a fatal termination. That, however, is not the subject to be discussed. This hypersensitiveness to the serum is a symptom-complex that is manifest when an animal is given the second injection of the alien serum. The whole subject is merely a part of the larger subject of immunity, the history of which practically dates back three years when Rosenau and Anderson began their work in this country and Otto in Germany. Magendie about seventy years ago reported that while injecting egg albumin into rabbits he found occasionally that after the second injection the animals would die suddenly. He passed over this, but it proves the old saying that "there is nothing new under the sun." Any serum from any species will serve; a small dose given first and large doses afterward will cause a fatal termination. Horse serum is the one most largely used. An injection of extracts from the bodies of bacteria repeated after nine or ten days will produce analogous symptoms; in many cases the animal becomes immune. Rosenau and Anderson, by injecting killed cultures of typhoid and colon bacilli, at short intervals were able to immunize 100 per cent. of guinea-pigs. The tuberculin reaction is merely a manifestation of anaphylaxis. To sensitize an animal, a small amount such as 0.000,001 c.c. of serum is sufficient. This period of incubation corresponds very much to the period of incubation of some infectious diseases. It has been shown that it lasts in a guinea-pig for more than two years and probably throughout the remainder of its life. It takes a high degree of heat, maintained for some minutes, to destroy the poisonous agent, it differs in this from the agglutinins and the lysins. Freezing and thawing have no influence on it. It filters through porcelain. Almost anything short of the destruction of the serum leaves this substance intact. We know absolutely nothing about the nature of this phenomenon. Rosenau and Anderson hold that the primary injection develops in the animals some sort of antibody, and that when the second dose is given it unites and produces a highly toxic agent which rapidly kills. Gay and Southard say that the horse serum holds two substances: one an anaphylactin that stimulates the body cells so that the next injection is broken up, separating a highly poisonous substance. Vaughan, who has done work specially with the white of the egg, says that the primary injection educates the cells to break up the substance rapidly and thus poison the animal. The symptoms are due to some paralysis or interference with the respiratory center. Gay and Southard state that the cause of death is emphysema; that the hemorrhages often found in the stomach and brain and other organs after the secondary injection are the immediate cause of death; and that these hemorrhages come from rapid

fatty degeneration, which they say occurs in three or four minutes. Death does not always follow. If instead of giving a small dose and allowing nine days or more to elapse, the large doses are repeated at short intervals, the animals become immune, but not absolutely immune, for the second dose frequently causes slight symptoms. Immunity has been transmitted through the mother, not through the milk; it has not been shown, however, to extend beyond the first generation. The sudden death which sometimes follows in man after injection of horse serum has something to do with the phenomenon of anaphylaxis. Just how it works out no one knows, but the symptoms reported resemble the symptoms which the sensitized guinea-pig shows. This condition of sensitization may be brought about even by feeding horse meat. Ordinarily the rash comes on after the eighth or tenth day following the use of antitoxin in diphtheria. Children develop the rash within twenty-four hours after being given the second injection. It has been called the accelerated reaction. The fact that some people die after an injection of horse serum is no reason for restricting its use. Asthmatics are highly susceptible to horse serum. Some care should be taken in making the injection. To a patient in whom the danger of the development of the symptom-complex is suspected, it is better to give the serum in broken doses. Injection should never be made directly into the blood vessel. There is no other treatment of the serum disease than stimulation for the respiratory symptoms. Very few patients recover.

Investigation of Diseases of the Esophagus

DR. C. M. COOPER, San Francisco: I advocate the orderly investigation of diseases of the esophagus by the following scheme: Clinical examination; laryngoscopic examination; hypopharyngoscopic examination; examination with the x-ray; examination with sounds; examination with the esophagoscope.

DISCUSSION

DR. E. C. SEWALL, San Francisco: In the beginning Kerstein found that he was able to pass a tube in about three-fourths of his cases. Killian's work, however, has demonstrated that the instrument can be introduced in all persons without anatomic abnormalities. The difficulty in passing the tube into the esophagus is encountered at the upper end and just beyond the cricoid cartilage. This is the narrowest part of the esophagus, and when the head is thrown back the narrowness is exaggerated by the pressure of the parts in front. Pressure is liable to be brought to bear and damage may be done here, especially if diseased conditions, such as carcinoma or diverticula, exist. Mikulicz has reported two deaths following rupture in passing the tube when there was a high-seated carcinoma. The early diagnosis of carcinoma is of so much importance that the value of the examination of the upper end of the esophagus is especially apparent. It remained for von Eicken to give us the best method for examining this hypopharyngeal region. One method is to pull the parts forward by grasping from the outside, using the laryngeal mirror. This is a difficult procedure, except when the patient is thin and the parts relaxed. Best has devised a blunt-pointed retractor which he introduces into the cocainized larynx. By making traction the parts are drawn forward and a view may be had of the hypopharynx. By this method I have recently been able to diagnose tuberculosis of the upper end of the esophagus when the laryngeal mirror showed nothing but pallor of the parts and paralysis of a cord. In tonsil work in removing the blood from the pharynx I have used an aspiration pump, which is equally efficacious in withdrawing the secretion in using the esophageal tubes. It is an extra heavy suction pipe to be screwed on an ordinary faucet and operated in connection with an exhaust bottle.

DR. W. F. CHENEY, San Francisco: I think that the esophagoscope is very disagreeable to patients. In one case at the Cooper Medical Clinic a man was so terrified that he has never come near the clinic since. If we can get evidence of the disease without using this instrument I think that is sufficient. Little is gained by using it.

DR. W. I. TERRY, San Francisco: I take issue with the statement that carcinoma of the esophagus is incurable. Gluck has cured esophageal carcinoma involving the neck, the cures lasting many years.

DR. H. B. REYNOLDS, San Francisco: In diseases of the esophagus reflex spasm is often an important factor. In some cases in which dilatation results from the reflex spasm I believe that the source of the spasm can be found and corrected. About a year ago I had under my care a man who had had difficulty in swallowing for four or five years. He was brought to me for operation for appendicitis. Up to that time he had been unable to swallow any solid food and only took liquids, his customary maneuver being to take sufficient liquid food to fill up the diverticulum and then to swallow pulpy food. I operated on this man for recurrent appendicitis, extending over a period of a number of years. I found the whole ascending colon covered with adhesions, which I removed as far as possible. Since that time he has been able to take the ordinary diet of a normal individual except on occasions when he has a partial recurrence of spasm. This experience has emphasized the possibility of finding conditions outside of the esophagus causing reflex spasm and dilatation when we may not really expect to find them, and the importance of adding to the scheme of Dr. Cooper the careful search for possible reflex causes of spasm, the correction of which may help the patient.

DR. C. G. LEVISON, San Francisco: One point must interest every one who has had any experience with this class of patients; that is the determination of the situation of the constriction by bismuth and the radiograph. This observation is of importance because it gives one a feeling of confidence when instruments are introduced. The introduction of the esophagoscope is painful, and the patient will permit this procedure to be repeated only after he has reached a point where he is unable to swallow, and by this time no difficulty is experienced in making a diagnosis without the use of the instrument. I introduce the esophagoscope with the patient reclining. In the use of the instrument we have several factors to contend with, such as bad teeth or a stiff vertebral column. The latter is a point of considerable importance which presents itself frequently in elderly people, and it is they who so frequently require the application of the tube. With an ankylosed vertebral column the patient experiences great difficulty in flexing the head sufficiently to render possible the introduction of a rigid instrument. With the patient lying on the back my experience has been that this becomes much easier.

DR. HERBERT MORFITT, San Francisco: I have had experience with esophagus work and can emphasize the necessity of getting through the routine examination before passing the tube, but I can not agree that the esophagoscope is such a dreadful instrument. I have patients who are coming back to me right along, and I do not find it necessary to give a general anesthetic. There are conditions which can be reached therapeutically only by the use of the esophagoscope. A boy of 16 was unable to swallow solid food for thirteen years; on investigation an ulcer was found in the lower portion of the esophagus. Taking this ulcer in connection with evidence of specific disease elsewhere, I applied specific therapy; the result was a complete cure of the condition. The same thing occurred in a smaller boy who had a constriction, chiefly spasmodic, with a very small scar, following the taking of potassium hydrate. After complete dilatation and painting of the esophagus, that boy has become perfectly well. Another case brings to mind the necessity of noting thoroughly the position of a stricture before any violent effort is made to get past it. A woman for fourteen years had had symptoms almost typical of spasmodic stricture at the cardia with evident dilatation above. As in all these cases, the symptoms got worse and the patient was finally unable to swallow enough food. She came to the hospital, and on careful examination no evidence of any other condition was found. With the esophagoscope the dilatation was readily seen; there was evidence of inflammation at the lower section, but no evidence of anything within the esophagus itself. A few hours after examination the patient was given food and after

swallowing experienced sudden pain in the abdomen. Perforation had occurred. This woman had a silent ulcer of the stomach with no symptoms. Dr. Cooper has mentioned in connection with these cases the fact that symptoms may be entirely esophageal. Dr. W. S. Thorne operated on a patient who referred all the trouble to the upper end of the esophagus and a constriction had been found there. The esophagoscope found the gullet free; there was no constriction except at the cardia, and gastrotomy done by Dr. Thorne showed the carcinoma wholly within the stomach. The importance of investigating the pharynx before the indiscriminate passage of sounds was emphasized in the late case of an old man with symptoms dating back about ten months, chiefly emaciation and dysphagia. Carcinoma of the esophagus was suspected, tubes had been passed and obstruction found opposite the bifurcation of the trachea. Sounds had been passed and milk was poured through the tube to prolong life. Only one attempt to inspect the esophagus was made, and it became apparent that the trouble was not at the bifurcation, but that the patient had a malignant growth in the upper esophagus; the epiglottis was infiltrated; the larynx was gaping, and the milk that had been fed him had gone entirely into the trachea. This patient died shortly afterward from bronchopneumonia, and autopsy showed a growth at cricoid with infiltration and an extremely wide-open larynx. I think that Dr. Cooper and I saw the case some years ago that Dr. Reynolds has mentioned. A thorough examination was made clinically and with the x-ray, and we concluded that the patient had not only a diverticulum, but a spasm of the cardia with dilated esophagus. It has been observed that operation elsewhere will relieve spasms of the cardia just as they will relieve spasms of the pylorus. It is well known that a number of patients are operated on for gastric disease whose trouble is entirely below the stomach: that pyloric spasm has been due to irritation elsewhere in the gastrointestinal tract, and that just as appendectomy will relieve these patients so occasionally cardiospasm will be relieved by operations elsewhere. As a rule, however, the relief is rather transient. Some years ago I saw a man who had the appendix removed for the relief of the cardio spasm but the spasm returned. Later he died of an infection of the mediastinum through an ulceration of the large esophageal pouch.

A Case of Glanders in Man

DR. G. CAGLIERI, San Francisco: On Sept. 6, 1908, I saw the patient, an Italian, age 30, living in San Joaquin Valley, where he had been working among horses. He complained of pain beneath the lower tuberosity of the left tibia. His temperature was 103F, he had no history of syphilis or tuberculosis, he had had typhoid four years ago. There was no history of traumatism. The pain increased and edema developed in the skin, with rising temperature. Two days later developed pain in the left elbow and later in the shaft of the radius. These areas became red and swollen and tender in twenty-four hours, and distinct fluctuation was present. The swellings over the elbow and knees were opened but no pus was obtained. From the swelling over the radius considerable pus was removed by incision, and from the knee joint by aspiration. A diagnosis of pyemia was made but by staining smears no pus organisms were found. The next morning the patient presented a typical picture of human glanders and smears and cultures from fluid aspirated from the lesions showed the characteristic organisms. At this time the patient became much worse: the elbow was four times its normal size; the skin was edematous and fiery red; the forehead was red and there was a profuse ichorous secretion from the nose. The man died on the tenth day. On the day before death he developed a rash over the whole body which looked much like smallpox and on the morning of his death the right submaxillary gland became swollen. When the case was first seen it presented the picture of periostitis, and later of pyemia. It is necessary to bear in mind rare conditions so that they may be recognized when seen. The case would not have been so difficult of diagnosis if the true condition had been thought of.

DISCUSSION

DR. W. F. CHENEY, San Francisco: I saw a case of glanders in a human being in 1904 to which I called the attention of the state society in 1905. At that time I went thoroughly through the literature; only five cases had been reported in California, two of which had been reported by Dr. Tait. The disease must be rather common throughout the state and yet few cases have been reported. Whenever a case is identified it ought to be put on record so that more attention may be called to it. Since I saw that case in 1904 I have been on the lookout for others but have not seen one.

DR. THOMAS H. O'CONNOR, San Francisco: In the case reported by Dr. Caglieri the leucocyte count was very low. The first time it was taken it was 9,000; at another time it was 8,000. The blood count showed, of course, a relative increase in the polymorphonuclear leucocytes. In looking over the literature I find that various writers have noted and emphasized the low leucocyte count in cases of human glanders. In my opinion, this was a case of latent glanders with encapsulated nodules. This man stated that he had not worked with horses for two years, but that, before that time had been employed in a capacity which brought him into close contact with them.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

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Elective Cesarean Section

DR. MILES F. PORTER, Fort Wayne, discussed Cesarean section as an operation of choice, especially in such patients as are usually delivered by so-called minor operations or by unaided natural forces after long labor. Heretofore too little attention has been paid to the morbidity of both mother and child. He said:

The question is not only one of motherless children and childless mothers, but of invalid mothers and idiot children as well. A study of the statistics shows that the average maternal mortality resulting from high forceps, version, induction of premature labor, and the expectant plan is 1.14 per cent.; the fetal mortality, 17.3 + per cent.; the maternal morbidity, 42 per cent.; the fetal morbidity 12.2 per cent.; not including the fractures of the skull in Leisenwitz' figures. It should be recalled that the children who recover from cerebral hemorrhage invariably suffer permanent disability, and in 30 per cent. epilepsy develops. Summarizing the reports of 126 elective Cesarean sections collected by personal correspondence, the maternal mortality is found to be 1.58 per cent.; the fetal mortality, 0; the maternal morbidity, 12.69; the fetal morbidity, 0. It should not be forgotten that the fetal morbidity following forceps, etc., is often worse than death. The results of these cases are in accord with the opinions of many men of experience. In placenta prævia the obstetric procedures result in a maternal mortality of 8 per cent., a fetal mortality of over 50 per cent.; and a high morbidity for both mother and child. No method of delivery entails so little risk to the child as does Cesarean section. Remote ulterior results of Cesarean section, including hernia, rupture of the uterus, and adhesions, can be prevented by proper technic so nearly completely as to render the dangers arising therefrom practically nil. Barring infection, some hours of labor do not increase the danger from Cesarean section. The obstetric operations no less than Cesarean section require surgical skill and judgment; indeed, the inherent difficulties of the former are perhaps the greater and no one, unless he be possessed of both skill and judgment, should undertake either. In contracted pelvis, Cesarean section should be the operation of choice in many multipara and practically all primipara. In placenta prævia with a viable child Cesarean section should be the operation of choice. In eclampsia in the primipara, with a viable child, Cesarean section is the best method of delivery usually.

With capacious pelvis and vagina, Dührssen's operation may be preferred. Abdominal section for uterine or ovarian tumors done at term should be followed by delivery of the child by Cesarean section. Given an elderly primipara at term with a vigorous child, with a normal pelvis, but rigid soft parts, unusually sensitive to pain and physically below par, and Cesarean section offers both mother and child a better chance of life and health than the so-called conservative operations. As one of the chief arguments in favor of Cesarean section is that it entails no risk to the child, it follows that a dead or dying child will often determine one to choose one of the conservative operations in cases in which the Cesarean section otherwise would be the operation of choice.

DISCUSSION

DR. E. GUSTAV ZINKE, Cincinnati: If I were to make any criticism on Dr. Smythe's paper, it would be that Cesarean section, and especially a Porro operation, under the circumstances, was unnecessary, and in so saying I do not wish to be understood as reflecting on his ability or judgment. As I understand the case, there was an ample pelvis. The only pathologic condition was the presence of a large ovarian tumor on one side and a small one on the other. The large one was removed without difficulty, and the second one could likewise have been removed, the abdomen closed. Judging from recent literature, Cesarean section will soon cease to be an elective operation, and will only be performed when there are positive indications.

DR. HENRY T. BYFORD, Chicago: It is rather radical to recommend Cesarean section in old primiparae. There are exceptional cases in which this operation might be done; but obstetrics is improving, and a good obstetrician, by using the various means at our command, can almost rule out Cesarean section in that class of cases. It is only in the exceptional cases we should resort to such an operation.

DR. CHARLES P. NOBLE, Philadelphia: I am heartily in sympathy with that part of the paper which speaks of broadening the field of Cesarean section. The question is, Which is the more dangerous to the child—an elective Cesarean section or a very difficult forceps operation? Surely, anyone who has had considerable experience in obstetrics, and who knows the great difficulty attending deliveries either by forceps or version under ordinary conditions existing in private practice, as well as what can be done by abdominal surgery under favorable conditions, must be driven to the conclusion, even on *a priori* grounds, that Cesarean section is much safer. The mortality to the mother approaches zero, and about 100 per cent. of the children are delivered alive by Cesarean section.

DR. MAURICE H. RICHARDSON, Boston: Unless fibroid tumors interfere seriously with normal confinement, I would not operate, and the results from non-interference are, in my experience, very good indeed. Nature is very kind in the delivery of a child from a uterus which contains fibroids.

DR. CHARLES H. MAYO, Rochester, Minn.: I recall two cases of tumors complicating pregnancy in which an elective Cesarean section was planned, but in both instances by manipulation the tumors were lifted out of the pelvis and the women went on to term and were delivered normally.

DR. RUFUS B. HALL, Cincinnati: A woman, aged 40, about to be delivered, came to me with a gallon or more of fluid in the abdomen. She had been ill two days. I operated on her as soon as she came in. I found an ovarian tumor about the size of a coconut, with twisted pedicle. I removed this tumor, but did not interfere with the pregnancy. The woman recovered nicely from this operation. On the thirteenth day thereafter she was delivered of a baby, and made a smooth convalescence.

DR. CHARLES L. BONFIELD, Cincinnati: I have done but one Cesarean section myself, but assisted Dr. Zinke in another, and in both instances I was impressed with the exceedingly ease of the operation. It is one of the simplest operations in abdominal surgery, gives rise to the least trouble, and in healthy women I would not expect a mortality of more than 1 per cent. When the uterus is infected,

a Porro operation is the operation of choice, but when the uterus is healthy, I see no reason for resorting to a Porro operation instead of the ordinary Cesarean section.

DR. WILLIAM D. HAGGARD, Nashville: There is one conclusion Dr. Porter arrived at in which we can heartily concur, namely, the wisdom of resorting to elective Cesarean section in cases of eclampsia at term, but not in labor. I have had occasion to do this operation twice in the last year in women who had been having a number of convulsions, one for eight hours and one for nine hours, both being in a comatose condition before they had the convulsions. Both were delivered by Cesarean section, and both mothers and children are alive.

DR. WALTER C. G. KIRCHNER, St. Louis: I recall one case in which pregnancy was complicated by a cyst. The cyst was removed, and the patient recovered from this operation. A few months later she developed perforative appendicitis, was operated on for that condition, recovered, and went on and was delivered of a healthy child.

DR. M. C. MCGANNON, Nashville: I am in accord with what has been said relative to broadening the field for Cesarean section, because it is probably one of the simplest abdominal operations in the hands of an expert. The mortality rate is practically *nil* so far as the mother is concerned, and it gives the child, under all circumstances, the best chance for its life.

Necessity of a Second Operation for Removal of the Appendix When an Appendiceal Abscess Has Been Treated by Simple Incision and Drainage

DR. STUART MCGUIRE, Richmond, Va.: Among the cases reported in a former article, entitled "An Analysis of the Last Five Hundred Cases of Appendicitis Operated on at St. Luke's Hospital," there were 23 cases of appendiceal abscess of the class adherent to the parietal peritoneum. In this group of cases the treatment had been simple incision and drainage, no effort being made to locate or remove the diseased appendix. In every instance the patients were told that the operation was not for appendicitis, but for an abscess which was the result of appendicitis, and that the appendix had not been removed. Two methods of investigation were followed: First, the opinions and practice of a number of eminent surgeons were obtained; and, second, the twenty-three patients whose cases were reported were written to and their subsequent histories ascertained. From the two lines of investigation the following conclusions may be drawn: While a surgeon may be justified in advising a secondary operation in all cases as theoretically the safest plan to follow, he is not justified in persuading, urging or starving a patient until he consents to have it done. The appendix should always be removed at the first operation if the abscess is small and not adherent to the abdominal wall beneath the incision. It should be left only in neglected cases in which the abscess is large and attached to the parietal peritoneum. When this condition exists, the appendix is usually gangrenous, undergoes liquefaction and is eliminated with the discharges. In such cases suppuration continues as a rule for several weeks, and before a secondary operation could safely be done the patient is homesick, weakened physically by confinement, and depleted financially by the expenses incident to his stay in the hospital. Experience seems to show that if subsequent trouble develops, the infection is not usually acute, and pus, if it is not formed, is walled in by old adhesions. Therefore, the surgeon does his duty if he makes it clear to the patient that, owing to the complications which existed, it was not found safe to remove the appendix, and tells him that while a second operation is advisable, it is not imperative unless he has tenderness over the incision, colicky pains in the bowels, or persistent digestive disturbances, in any of which instances it is distinctly necessary for him to promptly seek surgical assistance.

DISCUSSION

DR. LE GRAND GUERRY, Columbia, S. C.: In a series of nearly 500 appendix cases in the last three or four years, I have had 175 in which there was a localized abscess of the

appendix. Of these 175 cases, for various reasons, the appendix was left behind in 30 instances. Out of 30 cases in which the appendix was left, 5 patients were subsequently operated on, and the appendix removed on account of the reformation of an abscess, and one was operated on for a persistent fistula which led down beside the appendix. Three other patients have had their appendices removed by advice, although they did not have any particular trouble with them.

DR. MAURICE H. RICHARDSON, Boston: If we take the trouble to collect the pus in a basin, we will find a floating appendix in some of these cases. I have seen this so many times that I am prompted to say, those surgeons who advise universally the removal of the appendix at a second operation will not find any appendix to be taken out in many instances. I take it, once the appendix is diseased, it is always diseased, unless it is cast off in old abscesses, and, of course, we all remove the appendix unless there is an abscess one or two weeks old, and the man who tries to take out the appendix every time will get in trouble.

The subject was further discussed by Drs. R. S. Hill, W. P. Carr, C. P. Noble, R. Winslow, E. H. Ochsner, C. H. Mayo, J. B. Murphy, R. M. Cunningham, all of whom agreed that in certain cases it is better to deal with the abscess at the primary operation and leave the removal of the appendix for a subsequent operation.

Resection of the Bowel, with Report of Eleven Cases

DR. J. SHELTON HORSLEY, Richmond, Va.: In order to have satisfactory union there must not only be approximation of the serous coats of the bowel, but a mild degree of pressure as well, and this pressure must be uniform along the line of sutures. Experiments show that mere approximation of the peritoneal coat in dogs does not always secure union. In resecting the bowel, I first divide the mesenteric border and clamp and ligate this area before opening the lumen of the bowel. Union is made by a continuous suture inserted in the following manner: Starting about one inch from the mesenteric border, a mattress suture is inserted, so that the knot is on the mucous membrane in the manner advocated by Connell. The short end of this suture is clamped and the needle with the long end makes a continuous mattress suture toward the mesentery. After one-third of the bowel is approximated in this manner, the needle is brought through on to the peritoneal surface and the rest of the union is effected by a continuous right-angle suture penetrating all coats. When the point where the original knot was tied is reached, the suture is terminated by tying the thread to the short end of this knot. This makes it practically one knot for the whole line of sutures and brings this knot within the lumen. In eleven cases there was only one death. This was in a patient with strangulated hernia who had been a chronic alcoholic for years. The postmortem showed no sign of leakage or peritoneal inflammation. Death was evidently due to suppression of the liver and kidney functions. There were twelve resections in the eleven cases, as in one patient a double resection was necessary. The operations included five resections in four patients for strangulated hernia, one for gangrene from a band, one for volvulus of the sigmoid, two for malignant disease of the large intestine, one for tuberculosis of the cecum, and two for damaged intestine during pelvic operations.

Obstruction of the Bowels

DR. T. C. WITHERSPOON, Butte, Mont.: After reflecting on the results I have obtained in 38 cases (with 7 deaths) of bowel obstruction, I am prepared to go to less extreme measures to bring about relief than formerly. Most surgeons are inclined to look too much to the mechanical side of the problem at the neglect of the physiologic. Even in strangulation by a hernial ring, the lumen of the bowel loop caught in the hernia does not suffer from complete closure, but rather there is vascular obstruction. The bowel shut-off is as complete when its coat dies from a thrombotic process as when

caught in a hernial ring. The real obstruction is one of functional and not of pure mechanics. The danger to the patient arises from toxic absorption proximal to the infunctionate segment. With this in view, I have formulated for the principle of bowel drainage. The method of obtaining this may vary as the conditions vary, but it is the part of wisdom never to tax the patient's strength by long procedures except in a few instances, such as a Meckel's diverticulum strangulation. If the condition is due to a band, invagination, hernia, etc., which admit of easy remedying, apply the method, but if the case is one of uncertainty or one which necessitates an exhaustive and dangerous procedure, it is better to let out the proximal bowel contents by an artificial opening until the general toxic state is much improved, when a more radical measure may be adopted to bring permanent relief. Inflammatory obstructions clear up beautifully when the loop proximal to the involved segment is drained. Neoplastic or granulomatous processes may be readily handled after sufficient drainage is given the bowel above the lesion. The danger lies in attempting a complete procedure at the one time. A simple local anesthetic opening will suffice to bring about relief from sufferings, physical and toxic. In a week the anastomosis becomes a matter of simple surgery. In one of my patients, a child of 12, obstruction became complete nearly three weeks after an operation for general peritonitis. I opened the abdomen only to find a conglomeration of bowel loops, the unraveling of which probably would have caused death. I selected a portion of bowel which was proximal to the obstruction, and which, at the same time, seemed to be the most distal distended loop from the stomach, and drained it through a large rubber tube. In less than two weeks the fecal movements were passing again by the natural route and the artificial opening was allowed to close.

Some Rare Forms of Hematoma

DR. J. GARLAND SHERRILL, Louisville, Ky.: Three cases of hematoma presented symptoms somewhat in common and extending beyond the usual time which these conditions last, one having existed more than ten years, and each of them continuing to increase in size from the beginning. The following hypotheses are offered as possibilities in explanation of this condition: 1. The blood might flow through a sac returning into the vessel and remain fluid, at least in part, just as is the case in aneurism. This proposition would seem to be fallacious because these hemorrhages are probably venous, and the tendency of a vein is to collapse immediately on injury; and, moreover, no such patent vein has been noted in any of these cases. 2. The cellular tissues possess the power of secreting a substance which tends to prevent coagulation. This seems clearly refuted because the infrequency of the occurrence of persistent hematoma would appear to prove the lack of such power of secretion. 3. Slight infection present, in insufficient amount to produce suppuration, results in such change that the blood can not be taken up by the absorbent vessels. This theory seems to be irreconcilable to the facts in the case, for effused blood has but little power of resistance, and any culture of bacteria should find here an excellent pabulum, and suppuration would be inevitable. 4. The tissues about a hematoma may be so dense or so compressed that the absorbent vessels would be occluded or obliterated, thus preventing the accomplishment of their normal functions. This proposition seems to have a more probable foundation in fact, although not accounting fully for the phenomena. 5. Coagulation takes place, but when disintegration occurs the blood remains fluid, but is not absorbable. This contention seems also within the range of probability. 6. The constant escape of fresh blood occurs in a quantity more than sufficient to make up for the loss in volume from absorption. In proof of this I believe that it can be demonstrated that the escape of fluid into a hematoma does occur, as is shown in my cases, in which the tumor increased in size steadily. In one the bleeding occurred from a wounded vessel in the femur; in another the source of the blood could not be discovered, but I thought that it came from a small vein. There is also the possibility of blood

being manufactured inside the sac, as in the case of the development of the circulatory apparatus in the embryo, although it seems highly improbable that this could occur in adult life. From the evidence at hand, I conclude that the tissues about a hematoma from pressure lose their power of absorption; that even though coagulation and disintegration occur, resorption does not result, and that in some instances there is a continual addition to the amount of blood in the sac by an outflux from the damaged vessel.

Surgical Treatment of Exophthalmic Goiter

DR. JOHN R. WATHEN, Louisville, Ky.: Preliminary ligation of the superior thyroid artery on one or both sides has not only better prepared the patient to withstand the more severe shock of thyroidectomy, but has also greatly reduced the size of the tumor in the otherwise hopeless cases, and I have had occasion to employ to great advantage this method in several bad cases. In the preparation of the patient for operation, I have tried almost every remedy usually recommended to reduce the pulse and better the condition, but none has yielded such good results as absolute rest in bed and tincture of strophanthus. It is that class of cases in which no preliminary treatment seems to be able to make much temporary reduction, which are especially dangerous. These patients usually have an irregular pulse, a degenerated heart muscle, low blood pressure in contradistinction to the majority, who have often very much increased blood pressure, albumin in the urine, or enlargement and fatty degeneration of the liver. Aside from the proper selection and preparation of the patient, the most important thing is a rapid and safe technic, suitable to the average surgeon, and not a variety of complicated methods. The technic employed in my last fifteen cases has been a slight departure from that usually recommended. With the head elevated in the reverse Trendelenburg position, and a large sand pillow under the shoulders and neck, the skin is grasped with two pairs of Jacobs' volsella forceps in the median line and traction made upward. With the Mayo blunt-pointed scissors, instead of a knife, the skin and platysma muscle are incised, then with constant upward traction the incision is continued around the neck as far as necessary, using the scissors without in any way injuring the deeper structures. Next are ligated the anterior veins and the ribbon muscles of the neck severed high up and retracted, then the capsule opened, and the tumor grasped with a stout pair of large volsella forceps, and traction made in an upward and opposite direction. This allows the operator to wipe off the capsule of the gland with a piece of gauze, and place the arteries and the veins to be ligated on the stretch. Forceps should always be used to clamp rapidly, and these can be placed close on the tumor and ligated later with catgut after the complete enucleation. The isthmus is clamped with a large pair of forceps and cut V-shaped, parallel with the clamp, so the raw edges can be turned inward by whipping over with catgut, instead of the usual method of carbolic acid cautery and alcohol, or Harrington's solution. The wound should be washed out with hot saline solution, and closed with a subcuticular catgut suture. Drainage through a lower stab wound with large open rubber tube, instead of gauze or a cigarette drain, should complete the operation.

Fibroid Tumors and Pregnancy

DR. CHARLES L. BONIFIELD, Cincinnati: Fibroid tumors of the uterus are said to be the penalty a woman pays for celibacy. All observers agree that they are much oftener seen in women who have not borne children than in those who have, and we can safely say that sterility predisposes to fibroids and fibroids predispose to sterility. Fibroid tumors have a tendency to render women sterile in three ways: First, the hypertrophic endometritis they produce renders the endometrium unfit to receive and nourish the ovum. The nearer the fibroid is to the endometrium, the more marked its effect on this membrane. Second, they are frequently complicated by and apparently cause disease of the appendages, which prevents conception. Third, they may so dis-

place the cervix that it is not bathed in seminal fluid during the sexual act. But as a fibroid may exist without producing any of these conditions, and as pregnancy may occur in spite of the presence of one or more of them, the coexistence of fibroid tumors and pregnancy is not rare. It is probably more frequent now than formerly, for women are marrying later in life and thus putting off child-bearing until they have reached the age when fibroids are prone to develop. Pregnancy by the physiologic hyperemia of the uterus to which it gives rise usually causes fibroids to grow rapidly. During the process of involution, following the normal termination of pregnancy, fibroids may decrease in size perceptibly. Cases have been reported in which they have disappeared entirely. Fibroids may have no effect on pregnancy, or may give rise to most serious complications. Submucous fibroids may cause premature expulsion of the ovum. If a fibroid has developed between the folds of the broad ligament, it may prevent the uterus rising into the abdomen as pregnancy advances, and give rise to symptoms so severe as to demand immediate surgical relief. A fibroid springing from the lower part of the uterus may so fill the pelvis as to prevent the passage of the child, either prematurely or at term. Subperitoneal or interstitial fibroids that are interfering with pregnancy or promise to interfere seriously with delivery may be removed by myomectomy. Numerous cases have been reported in which the operation has been done successfully without interruption of pregnancy. Only one such case has come under my observation. Myomectomy should usually be limited to those cases in which the tumors are not numerous and are easily accessible. In spite of the reported cases of myomectomy, one can not expect the uterus to withstand too much traumatism without rebelling.

Vaginal Hysterectomy for Carcinoma of the Cervix

DR. HENRY T. BYFORD, Chicago: The relative value of the vaginal and abdominal routes is still under discussion. The advocates of the abdominal route are inclined to be less radical than its propounder, Emil Ries, in order to diminish its excessive mortality; while some of the German operators in their attempts to be more radical are increasing the dangers of the vaginal method by splitting the vagina and opening freely into the plevic connective tissue. I am satisfied that the permanent results may be improved sufficiently to give the operation an important place in the future, and propose a method of causing sloughing of the broad ligaments by the combined use of silk ligatures and strong forceps. In this way much more of the connective tissue in the broad ligament and about the cervix can be removed than by either ligatures or forceps, as ordinarily employed. The essential part of the method consists in ligating the broad and sacrouterine ligaments as far from the cervix as possible after having pushed the ureters out of the way. After the uterus has been removed, the broad ligaments are pulled still farther down and strong forceps are applied still farther away, and clamped so as to cause sloughing of all tissue within their grasp.

Dr. Byford exhibited a pair of forceps which he has devised, believing it obviates some of the objections that are found in the ordinary broad ligament forceps.

Abdominal Aneurism

DR. MURAT WHITS, Richmond, Va.: A critical study of 21 cases thus far reported leads to the conclusion that so far surgery offers no certain relief for this malady. Of these 21 patients, the subsequent history of 3 is not recorded; in the remaining 18 death ensued in every case. The duration of life after operation in this series varies from one hour to nine months, with an average duration of less than fifty days. The operative technic, as developed for this condition, would seem to be absolutely perfect and based on sound surgical principles, but the fact remains that this method of treatment is disappointing, and the last word has not yet been said concerning the surgical treatment of abdominal aneurism.

Surgery of the Pleura

DR. JOHN B. MURPHY, Chicago: Pneumothorax is not so dangerous a condition as we have been led to believe. In discussing lesions of the pleura, we must consider first the primary infective, perforative lesions, which demand prompt and immediate action; second, chronic indurated lesions, which call for masterly inactivity, so far as operations are concerned. In the first class of cases the use of the exploring needle between the ribs will usually afford relief; but incision will give these patients immediate relief. Aspiration does not cure chronic conditions of the pleura. According to statistics, of 1,000 patients treated by simple aspiration, only 2 cures were reported. In the suppurative types of infection of the pleura, absorption of the toxic products can be stopped, sterilization of the fluid effected, and the necessity for opening the chest avoided. A number of agents have been used for this purpose. Perchlorid of mercury has been used with success. Formalin, which has little or no toxic effect, has great sterilizing power. I have used it in cases of excessive hydrops, where a lung would be compressed, and with almost one injection the secretion was stopped. Pus cases are not cured with one injection, except in children. In the other variety of cases, in which there is a dense, firm mass of cicatricial tissue, which will not contract, we have a different condition. We have tissue which will remain for years without absorption, because many times it has large deposits of calcium salt in it and can not collapse. In these cases we can make use of the same injections, but we must give them more slowly. Injection of 2 per cent. solution formalin and petrolatum sterilizes the fluid contents and prepares it for absorption, and finally, in six months thereafter we will have a sanguinolent fluid, and in twelve months the patient is practically well, without any tube in his side.

Splenectomy for Splenomegaly of Doubtful Classification

DR. M. C. MCGANNON, Nashville, Tenn.: The case which I desire to report has some unusual features, not heretofore recorded in connection with primary splenomegaly. Patient is a white woman, aged 43. Chronicity is doubtful, since the patient first noticed the enlargement of the spleen only a few months before she came under my observation. Her physical condition has been below par for a year or two; but preceding an attack of pneumonia, which was four months before she discovered the splenic enlargement, she had not considered herself in any sense a sick woman. Anemia, hematemesis, jaundice, liver enlargement, all terminal symptoms, might have arisen later had the disease been permitted to continue. The most marked unusual features of the case are the general enlargement of the superficial lymph nodes and the myxedematous symptoms; thickened, puffy skin and mental hebetude, with complete disappearance of all symptoms and pathologic conditions in other tissues after the removal of the spleen.

Relation of Surgery to the Neuroses, Especially Neurasthenia

DR. CHARLES M. ROSSER, Dallas, Texas: Surgery is the most definite art with which medicine is concerned, and neurasthenia the most vague of diseases. Writers mention heredity and exercise, but ignore intercurrent causes independent of which, in many cases, physiology would not be disturbed on account of predisposition, and excitation. Neurasthenia in both a psychosis and a physical condition, and may be induced by surgical conditions which disfigure, disable or distress. As physical causes, deformities which may not affect vital functions, but which embarrass sensitive temperaments, are factors. The clinical examination should be as careful as though the symptoms are not exaggerated. The prognosis should be more guarded, but the patient should be denied no opportunity of physical relief on account of nervous and mental conditions, and should be subjected to no procedure that is not justified by clinical findings. Patients should always have the benefit of all doubts that are reasonable.

(To be continued)

Miscellany

The Fable of the Manufacturer Who Wanted What He Paid For

"What is the matter?" asked Dr. Brzezlarzik, professor of the University of Weissnichtwo. "What do you complain of?" he asked affably. The merchant bit his lip. He lifted his brows and contracted them again. At length he spoke:

"Herr Privy Councilor . . . certainly some mistake has occurred."

"What mistake? Well, we will soon put the matter right."

"You probably remember, Herr Privy Councilor, that I called on you a few weeks ago to ask you for a testimonial. Edhoffer is my name."

But Professor Brzezlarzik could not recollect.

"It was about a testimonial, if you please, Herr Privy Councilor. My name is Edhoffer."

"Ah, yes—yes, yes, I know. It was about malt bonbons, was it not?"

"No, pardon me, Herr Privy Councilor, it had nothing to do with bonbons."

"Indeed, excuse me. Some mechanical device, I believe?"

"No, Herr Privy Councilor, it concerned Antipelinon—the best of moth powders. For twelve years we have been producing all kinds of insect powders. We are well known; indeed we are purveyors to Prince Nikola of Montenegro. We have letters of thanks from very many competent persons and from people of note. But, also, one can not publish them, because one does not know whether it will be agreeable to the writers. But now, certain fraudulent firms in the same line have testimonials from heaven knows what obscure assistants and professors. Therefore, I said to myself, 'Edhoffer, go to our illustrious Professor Brzezlarzik and ask him to experiment with Antipelinon and to give us a testimonial about it that can be published. So I came here on the day referred to.'"

"Yes, yes, now I recollect; fourteen days ago was it not?"

"Yes, Herr Privy Councilor, and then I brought you six vials and begged you to have the kindness—and then three days ago I sent my messenger here for the testimonial and he put an envelope with 500 crowns—pardon me, I allude to this only as a detail—he put an envelope with 500 crowns on the table," and Herr Edhoffer held out a sheet of paper.

"Well, sir, you received the testimonial, did you not?"

"Yes, Professor, but what a testimonial!"

The Privy Councilor put on his *pince-nez* and read:

"To Anton Edhoffer, Court Purveyor, Weissnichtwo:—I have made scientific experiments with the insect powder Antipelinon, which has been highly recommended to me, and which gained a gold medal at the Universal Exposition, and have obtained the following results: A brood of fur moths (*Tineada pellionella*, L.) placed in Antipelinon thrived splendidly in a very short time. The caterpillar, which ordinarily is only from six to seven millimeters in length, when nourished with the aforesaid Antipelinon became ten millimeters in length, well developed, and remarkably robust. The caterpillar of the clothes moth (*Tineada sarcitella*, L.) gave even better results. Ordinarily it attains only six to seven millimeters, like the preceding, but when nourished with Antipelinon it produced remarkable examples which measured from the mouth to the last ring of the body 11.05 millimeters. Therefore, I do not hesitate to describe Antipelinon as the best existing insect powder and desire you to send to me six more bottles of the same for my own use.

DR. BRZEZLARZIK,

Professor of the Royal and Imperial University."

"Yes, my dear sir, that is manifestly an error, I confess, but whose fault is it? Yours! When a scientist, if you please, is asked to make a scientific experiment he should at least be given his instructions beforehand without confusion: 'Such and such a point is to be proved.' The experiments are then arranged with that end in view and they are invariably successful."

"Excuse me, professor. . . ."

"Now, now, do not get annoyed, my dear sir. As to the testimonial, an assistant prepared it during my absence; but you

need not worry over that. I am honorable and always follow the principle that what is unsuitable must be exchanged without demur. Leave your vial here, and I will make a new experiment. In a week I will send you another testimonial which will satisfy you, sir. Rest perfectly assured, you will be satisfied, Herr Court Purveyor. I enter fully into your feelings. I will personally make a new experiment which shall have totally different results. It will be a pleasure to me. *Au revoir*."—Translated from *La Spritulo*.

MORAL: When accumulating testimonials, write them yourself and merely pay for the signature. It saves work for the payee and annoyance for the payer.

The Teaching of Anatomy.—Prof. Franklin P. Mall, professor of anatomy at the Johns Hopkins Medical School, in the *Anatomical Record* (November, 1908, ii, 313) gives his views on the teaching of anatomy to medical students, with a synopsis and description of courses in anatomy offered at Johns Hopkins. The ideas here set forth are in marked contrast to the views recently expounded by British and American medical educators, who favor a more didactic routine method of teaching anatomy (with emphasis on the "essential" points). Professor Mall is more in accord with the German than with the English method of teaching anatomy. He says: "I do not believe the study of human anatomy is of such value [i. e., by far the most important course for medical students], but it has held its own so long, it is so well entrenched in the medical course and in medical literature, and it has been represented by so many great masters during ages that as a discipline and as a foundation it justly occupies the first position." The principle of self-instruction by the students from the cadaver, etc., under guidance of the instructor is considered the most essential part of the course; for thus a student not only becomes most quickly grounded in the subject, but is also afforded an excellent opportunity for discipline toward a critical and scientific point of view, which is essential for the development of scientific medical men. Concentrated courses in anatomy are favored. A student should stick to the study of anatomy until he has become well grounded in the subject or until he has finished the required amount of work in anatomy. Thus a student is able to do his work better and the odd hours between classes are not wasted. Mixing up courses in physiology, etc., in the medical course at the same period of the year with anatomy, he considers a "dissipation of energy." Since the needs of all students are not the same, the course in anatomy should be arranged to meet as nearly as possible the requirements of each. For example, the interest in anatomy of the future surgeon is different from that of the ophthalmologist or of the obstetrician, and the amount of anatomy desired by each would be probably different from that of the practitioner in internal medicine. For these reasons it is thought desirable to have special elective courses, but to require of all students a minimum amount of "gross human anatomy as a practical course," to the teaching of which "the best energies of the anatomic staff should be devoted." The next course in order, which no one will question should be required of all students, is that on practical histology. Every medical student should also be proficient in histology; that is, should be able to use the microscope intelligently in working out animal tissues, especially mammalian and human." In regard to what is practical, there is, of course, a great divergence of opinion, and in regard to the amount of anatomy to be given a student, Professor Mall agrees with Waldyer: "The days still contain but twenty-four hours, and life must still be reckoned by three-score and ten, and there is no evidence that the mind can stand a greater strain than formerly. First and foremost we must ask ourselves what is absolutely necessary for the future physician to study in anatomy and what is of secondary value but still safe." The necessary anatomy he would make obligatory and would examine it, but he would not discontinue courses on the useful subjects of secondary importance, for it is through the study of the latter that the science progresses. These secondary courses should not be made obligatory in any way, by being prescribed or through examination.

The State of the Brain During Hypnosis.—William McDougall (*Brain*, 1908, xxxi, part 122) believes that the more sober way to attack and explain hypnotic phenomena is to approach hypnosis in its simplest forms—to try to explain in the first place those phenomena of hypnosis which closely resemble well-known states of the normal mind, rather than to use as a working hypothesis the theory that hypnosis is a state of "extended faculty and increased mental power," and that its phenomena are supernormal and marvelous. He believes that the hypnotic state is closely allied to the normal sleeping state (as evidenced by the close similarity of the methods and factors which are favorable to the bringing about of the respective states—the withdrawal of all forms of sense-stimuli, the banishment of all exciting or emotional thoughts and the concentration of the attention on some unexciting sense-impression); that "the state of normal sleep may be converted into hypnosis," and *vice versa*, "the transition from one state to another being perfectly gradual, so that no line can be drawn between them," and that each depends on "cerebral dissociation." In cerebral dissociation is implied the hypothesis of the existence in the normal waking state of numerous psychophysical systems of circuits more or less closely connected, which are somewhat comparable to the (physical) reflex arcs of Sherrington. Synapses are present within and between these systems, whose resistance to the passage of sense impressions is normally in inverse proportion to the amount of free nervous potential. Fatigue and anesthetic drugs increase the resistance of these synapses so that each of the many systems is more or less completely isolated or dissociated from the others and each within itself. In normal sleep the cerebral dissociation is relative. In hypnosis cerebral dissociation is complete with most of the systems; a few, however, remain normal. These latter are under control of the "operator," since normally it is only by the interaction to an impression of all our psychophysical systems (many of which are inhibitory to one another for preponderance of an idea) that we are able to form a well-balanced conclusion. Now, when, in hypnosis, the few psychophysical systems which are not dissociated receive impressions from the operator they react directly, without the restraining influence of the dissociated systems (and hence without question), and with the entire potential of the neuro-psychic apparatus. "If these views represent an approximation toward the truth, it follows that the therapeutic value of hypnotic suggestion consists principally in the fact that it is a means of concentrating powerful currents of nervous energy in any required direction and of withdrawing them from other parts. By thus withdrawing the nervous currents from an overworked or unduly irritable nervous center or bodily organ, and by isolating it through induction of a relative dissociation of the center, rest may be secured and a bad habit of overaction may be suspended, as e. g., in neuralgia," and *vice versa*.

Improved Powder Vehicle for Dermatology.—Unna devotes a large part of the *Monatshfte für praktische Dermatologie*, October 1, to a discussion of the advantages of using as a vehicle a powder which is very mobile, like lycopodium. This is used in casting metals, interposed between the sand cast and the molten metal, and it allows the moist sand mold to be lifted up from the model without the least loss of its finest relief. Nothing else has been found to date with the same properties, that is, the elasticity of the single grains, their regular size, the slight friction between them, their non-absorbence of moisture and the large proportion of air in the interstices. Unna describes researches which show that these same properties are of great importance in dermatology. Such very mobile powders (*Gleitpulver*) form a regular, even and adherent coating, far superior to the clump-forming powders hitherto in use, especially in a flesh tint for the face and hands. He gives a number of formulas for ointments and pastes, stating that, besides the natural lycopodium powder, an artificial very mobile powder can be made by mixing 98 parts potato starch with 1 part carnauba wax and 1 part light magnesium carbonate. A good formula for a healing, flesh-colored powder is as follows: 89 parts potato starch; 10

parts zinc oxid and 1 part carnauba wax, mixing and adding 5 parts each of a 1 per cent. solution of ichthyol and of eosin. Another formula is 5 parts of zinc oxid and 95 parts lycopodium, adding 10 parts of a 1 per cent. solution of eosin.

Sudden and Complete Loss of Vision in One Eye Without Evidence of Anatomic Changes.—E. L. Meierhof (*New York Eye and Ear Infirmary Reports*, July, 1908, xiii, 74) reports the case of a widow, aged 30, who found on arising, a complete loss of vision in the left eye. The examination of the left eye showed a widely dilated pupil with normal tension. The position of the eye was somewhat divergent; there was no pupillary reaction to strong artificial light directly, nor was the pupil of the unaffected eye affected by the light stimulus on the affected eye. The refractive media were entirely clear. Examination of the fundus failed to reveal anything pathologic. Examination of the nose showed a mucopurulent discharge, which might have come from the sphenoidal sinus. Meierhof believes that the blindness was due to disease either in the ethmoidal or sphenoidal sinus. Among 20,000 eye cases seen in five years, this is the only such case observed.

The French and the Panama Canal.—The French monthly, *Hygiène Générale et Appliquée*, has been publishing a review of the great sanitary triumph in the Canal Zone, and, while paying due tribute to the achievements of the medical force in charge, it adds that no private company could ever have accomplished the same results. Prophylaxis and executive and administrative power must be closely connected, and the French companies had no authority for sanitary policing of the isthmus, while the United States Government has complete power over the Canal Zone, even to the exclusion of persons whose presence may be considered dangerous for the public health or who would be liable to oppose obstacles to the furtherance of the work. The article continues: "The French companies were unable to use more than moral suasion, and the prejudices—which everywhere are inseparable from ignorance—constituted one of the most serious difficulties with which even the Americans themselves had to contend. Moral suasion is an inadequate weapon when it is a question of applying the most elementary precepts of hygiene and of cleaning up towns which centuries of disregard of hygiene have rendered refractory to all measures of sanitation or even of simple cleanliness. In vain the French companies erected hospitals and spent money on their maintenance; all their efforts remained sterile, as they could not reach the source of the evil. The French companies had to abandon the task of improving the sanitary conditions as much on account of their absolute lack of authority as of the precarious tenure of their possessions and the disturbed condition of the country. The Americans, more fortunate, took up the work just when the progress of science had given them the key to the problem and circumstances rendered it possible for them to apply it; they deserve none the less credit on this account, as even with all this, considerable difficulties yet had to be surmounted. The remarkable results obtained by their methods and perseverance will not only serve the national interests, but will constitute for the entire world an important factor in general progress."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, Jan. 18-20. Sec., Dr. J. A. Egan, Springfield.
KANSAS: Topeka, Feb. 9. Sec., Dr. R. A. Light, Chanute.
NEBRASKA: State Capitol, Lincoln, Feb. 3-4. Sec., Dr. E. J. C. Sward, Oakland.
NEW YORK: Albany, Feb. 2-5. Chief of Examinations Division, Dr. Charles F. Wheelock.
WYOMING: Cheyenne, Feb. 10-12. Sec., Dr. S. B. Miller, Laramie.

Florida November Report

Dr. J. D. Fernandez, secretary of the Florida Regular Board of Medical Examiners, reports the written examination held at Jacksonville, Nov. 11-12, 1908. The number of subjects

examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 59, of whom 52 passed and 7 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Birmingham Med. Coll.	(1907)		88
University of Alabama	(1908)		81
Atlanta School of Med.	(1907) 88; (1908) 75, 87, 90,		94
Medical Coll. of Georgia	(1902) 75; (1908)		82
Atlanta Coll. of P. and S.	(1907) 87, 93; (1908)		83
Rush Med. Coll.	(1902)		78
College of P. and S., Chicago	(1883)		84
American Med. Miss. Coll.	(1900)		94
Medical Coll. of Evansville, Indiana	(1877)		75
University of Louisville	(1908)		90
Kentucky School of Med.	(1908)		92
Louisville and Hosp. Med. Coll.	(1907)		84
Tulane University of Louisiana	(1908)		82, 92
Flint Med. Coll.	(1895)		75
Johns Hopkins Med. School	(1906)		92, 97
Baltimore Med. Coll.	(1892)		80
College of P. and S., Baltimore	(1904)		91
University of Michigan	(1907)		93
Washington University	(1905)		84
Bellevue Hosp. Med. Coll.	(1883) 75; (1906)		95
New York University Med. Coll.	(1879) 84; (1898)		93
University of Buffalo	(1896)		96
Coll. of P. and S., New York	(1884) 96; (1905)		94
University of North Carolina	(1908)		80
Medico-Chirurgical College of Philadelphia	(1907)		96
Jefferson Med. Coll.	(1907)		91
Medical Coll. of South Carolina	(1907) 82; (1908)		84
Chattanooga Med. Coll.	(1906) 75; (1908)		94
Meharry Med. Coll.	(1908)		80
University of Nashville	(1907) 91; (1908)		85, 91
University of Tennessee	(1890)		75
Tennessee Med. Coll.	(1907)		84
University of the South	(1907) 85, 86; (1908)		84
University of Toronto, Ontario	(1882)		94

FAILED.

Georgia Coll. of Ecl. Med. and Surgery	(1902)	38.7
Hospital Coll. of Med., Louisville	(1908)	52.8
Mississippi Med. Coll.	(1908)	59.4
Meharry Med. Coll.	(1908)	64, 67
Gate City Med. Coll.	(1908)	55.1, 68

West Virginia November Report

Dr. H. A. Barbee, secretary of the State Board of Health of West Virginia, reports the written and oral examination held at Wheeling, Nov. 10-12, 1908. The number of subjects examined in was 9; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 31, of whom 28 passed and 3 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Howard University	(1908)		84
Kentucky School of Med.	(1907) 84; (1908)		81, 83
Woman's Med. Coll., Baltimore	(1908)		84
Maryland Med. Coll.	(1908)		82, 90
Louisville Med. Coll.	(1908) 81, 84, 85		
College of P. and S., Baltimore	(1907) 86, 88; (1908)		80, 84, 87, 89.
University of Maryland	(1907) 84; (1908)		85
Baltimore Med. Coll.	(1908)		91
Tufts Coll. Med. School	(1897)		90
Miami Med. Coll.	(1908)		87
Medical Coll. of Ohio	(1907)		85
Western Pennsylvania Med. Coll.	(1906) 90; (1907)		87
Leonard School of Med.	(1908)		86, 89
University of Vermont	(1903)		86
University College of Med., Richmond	(1901)		88

FAILED.

University of Louisville	(1907) 77; (1908)	70
Chattanooga Med. Coll.	(1904)	77

The following questions were asked:

PHYSIOLOGY AND HISTOLOGY

1. Give the normal constituents of the urine, and describe the action of the kidneys; 2. Describe the normal heart sounds, give probable reasons for same and tell where best heard; 3. How is blood renewed in the human body after hemorrhage, give normal proportion; 4. Name the organs of the special sense and their function; 5. Describe the physiology of rectal feeding; 6. What is the function of the Eustachian tube, how and why is hearing affected by the membranal tympani being ruptured? 7. State the functions of the (anterior and posterior) spinal nerve roots, prove same; 8. What is the physiologic function of the liver, lungs and kidneys; 9. Give the histology of a nerve trunk; 10. Give function of veins, arteries and capillaries. How do they differ as to structure?

SURGERY

1. State fully how you would treat a blank cartridge wound of the palm of the hand, and give reason for your plan of treatment; 2. Give cause and treatment of hydrocele; 3. In case of threatened death during general anesthesia, what measures should be adopted? 4. What are the varieties of dislocation of the shoulder joint? How would you treat one variety? 5. What are the first and pathognomonic symptoms of secondary syphilis? What

is the etiology and treatment of venereal warts? 6. Give symptoms, diagnosis and treatment of intestinal obstruction; 7. How would you diagnose retention of urine? What would you do for it? 8. What symptoms would lead you to think that a patient was suffering from a concealed hemorrhage, after a laparotomy; 9. Give diagnosis of presence of gallstones. Give in detail surgical treatment of same; 10. Give the cause, diagnosis and treatment of rupture of the intestine.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. Define temperature, (b) fusing heat, (c) latent heat, (d) solution; 2. Explain osmosis, what chemical value has it? For what is silver nitrate used? 3. Tell how you would distinguish between ferrous and ferric salts, what two bodies containing iron are used in medicine? 4. How would you detect the presence of arsenic? State in detail the duties of the physician in case of arsenical poisoning; 5. Give a short and simple classification of insanity; 6. Define a base; 7. Tell in detail how to detect bile in urine; 8. Describe the chemical changes in starch during digestion in detail, giving formulas; 9. Give the chemical reaction of saliva, gastric juice, urine, mother's milk and synovial fluid; 10. Give test for formaldehyd in milk.

PRACTICE AND PEDIATRICS

1. Give pathology and treatment of cholera infantum; 2. Give treatment of intestinal indigestion; 3. How would you treat a case of typhoid perforation? 4. Etiology, symptoms and treatment of scorbutus; 5. What is septicemia? What is pyemia? 6. Define hypertrophy and dilatation of the heart; 7. Give symptoms and treatment of Bright's disease; 8. Give symptoms and treatment of thrush; 9. Define, give symptoms and treatment of rachitis; 10. Acute enterocolitis symptoms and treatment.

MATERIA MEDICA AND THERAPEUTICS.

1. Give information, principal uses and dosage of salol; 2. Describe hyoscyamin, uses and dose; 3. Name three diuretics with indications and dose of each; 4. What are the indications for internal use of calcium chloride; dose? 5. Write a prescription for a case of nervous dyspepsia with flatulence; 6. Give type of so-called tonics, when and how used, dose; 7. What is the most useful preparation of arsenic, dose? 8. Name three useful therapeutic remedies—not drugs; 9. What is hydrastis canadensis, where found, physiologic action, preparation, dose; 10. Give history, uses, dose of terpin hydrate.

BACTERIOLOGY AND HYGIENE

1. Name three divisions of bacteria and one representative of each division; 2. What is toxin? An antitoxin? 3. Name three diseases caused by microorganisms and describe the organism in each; 4. Name some of the pus forming bacteria; 5. Give some of the most approved methods of staining the common bacteria; 6. What is the relative value of moist and dry heat as a germicide? 7. Name five of the most important disinfectants with directions for using each; 8. Name some of the most important adulterations found in foods. How may they be detected? 9. What advice would you give a patient suffering from tuberculosis to protect other members of the family? 10. What hygienic precautions are essential to prevent the ravages of summer diseases in children?

SPECIAL PRACTICE

1. Differentiate between chronic pneumonia and tuberculosis; 2. Give diagnosis of cancer of the stomach; 3. Give best method of removing tonsils; 4. Give diagnosis of tuberculous laryngitis; 5. Describe adenoids and give treatment; 6. Give treatment for acute coryza; 7. Treatment of ophthalmia neonatorum; 8. Diagnosis of iritis, what are the causes; 9. Describe and treat tabes dorsalis; 10. What is Romberg's symptom?

OBSTETRICS AND GYNECOLOGY

1. Give axis and diameter of pelvis and name muscles engaged in act of expulsion of child; 2. Give the undesirable presentations and positions and the customary methods to bring about delivery; 3. Describe in detail application of obstetric forceps, when resort to their use? 4. Give your method of conducting third stage of labor and the treatment of post-partum hemorrhage; 5. Carefully detail the proper care of labor from birth to third day; 6. Surgical and non-surgical attention to mastitis; 7. Probable cause and treatment of puerperal eclampsia; 8. Give cause, symptoms and treatment of puerperal septicemia; 9. Give various treatments of uterine displacements; 10. Give differential diagnosis and treatment of fibroid and cystic tumors of pelvic cavity.

ANATOMY AND EMBRYOLOGY

1. Name the bones of the upper extremity, including the hand; 2. Brain: Describe its gross anatomy and give coverings; 3. How many teeth in temporary set, permanent set. Describe a tooth; 4. Describe the aorta, give its branches; 5. Describe the contents of the axillary space; 6. Sciatic nerve, give origin and distribution; 7. Name and locate the ductless glands; 8. Name varieties of articulations, give example of each; 9. Describe prostate gland; 10. Describe chorion.

Medicolegal

Antitrust Law Not Violated by Agreements of Physicians Fixing Fees.

The Supreme Court of Iowa says, in the habeas corpus case of W. A. Rohlf vs. Henry Kasemeier and the State of Iowa, that the plaintiff and a number of other physicians and surgeons were indicted by the grand jury of Bremer county for the crime of entering into an agreement, combination or understanding to fix and maintain fees and charges to be exacted for medical and surgical services in said county. The plaintiff was arrested under the indictment and thereafter

brought the habeas corpus proceedings to secure his release from custody. He claimed that he was unduly and illegally restrained of his liberty for the reason that the indictment charged no offense known to the Iowa laws, and that if there were a law forbidding such acts as were charged against him it was unconstitutional and void in that it deprived him of his liberty, prevented him from acquiring or possessing property and deprived him of his safety and the pursuit of happiness; deprived him of the right of contract and of the equal protection of the laws.

The indictment charged that said physicians, on July 30, 1907, in said county, being physicians and surgeons located and practicing their professions in said county, "did then and there wilfully, unlawfully, and maliciously conspire, combine, confederate and agree with each other to create, organize and enter into, and did then and there wilfully, unlawfully and maliciously enter into and become a member of and a party to a trust, pool agreement, contract, combination, confederation and understanding to fix, establish and regulate and maintain the price of a commodity in the County of Bremer, State of Iowa, and did then and there wilfully and unlawfully fix, regulate and establish the price of medical service and medical skill, and the profit, benefit, fee and compensation to be received therefor, contrary to the form of the statute in such case made and provided, and against the peace and dignity of the State of Iowa."

The case must turn on the construction of the Iowa statute. Section 5060 of the Iowa Code, under which the indictment was found, reads: "Pools and trusts—Any corporation organized under the laws of this or any other state or country for transacting or conducting any kind of business in this state, or any partnership, association or individual, creating, entering into or becoming a member of, or party to, any pool, trust, agreement, contract, combination, confederation, or understanding with any other corporation, partnership, association or individual, to regulate or fix the price of any article of merchandise or commodity, or to fix or limit the amount or quantity of any article, commodity, or merchandise to be manufactured, mined, produced, or sold in this state, shall be guilty of a conspiracy."

The first point to be decided was, Did the acts charged constitute a crime under this section of the Code? It will be noticed that it forbids a combination, agreement or understanding to regulate or fix the price of any article of merchandise, or commodity, or of merchandise to be manufactured, mined, produced or sold in this state. The primary inquiry was, Are the charges of a physician or surgeon for his medical skill or ability an article of merchandise or commodity to be produced or sold in this state?

It was contended that the word commodity is broad enough to cover the charge made for professional services or skill, and that the trial court was in error in holding to the contrary. Now the word commodity is derived from the Latin *commodetas*, and means primarily a convenience, profit, benefit or advantage, but in referring to commerce it comprehends everything movable, that is bought or sold, except animals.

It must be remembered, however, that the word is found in a criminal statute and that in the interpretation of such statutes different rules apply from those which obtain in civil matters or where contracts are involved. Nothing is to be added to such statutes by intendment, and as a rule they are to have a strict construction. Moreover, it is well settled that in construing any statute all the language shall be considered and such interpretation placed on any word appearing therein as was within the manifest intent of the body which enacted the law. Much of necessity depends on the context and on the usual and ordinary significance of the language used.

Here the indicted defendants were, for a price, giving their own services, or perhaps selling them, and the question was, were these personal services a commodity? As already indicated, the word must be taken in connection with the other words used in the statute, and it is manifest that the commodity referred to must have been such as could be manufactured, mined, produced or sold in the state, and the price was

to be of an article of merchandise or commodity. If the contention of the state was correct, the statute covered all kinds of personal labor, both skilled and unskilled, under the term commodity. Indeed, this was the broad claim of counsel. But used in connection with the term merchandise and qualified as it is in the latter part of the section by the words manufactured, mined, produced or sold, it is manifest that the statute was not intended to and did not include labor either skilled or unskilled.

The statute in question was aimed at unlawful conspiracies or combinations in restraint of trade and was manifestly not intended to cover labor unions. It is the right of miners, artisans, laborers or professional men to unite for their own improvement or advancement or for any other lawful purpose, and it has never been held, so far as this court is able to discover, that a union for the purpose of advancing wages is unlawful under any statute which has been called to the court's attention.

No case was cited which supports the state's contention, and this court has not been able to find any. On the other hand the following lend support to the court's conclusions: *Cleland vs. Anderson*, 92 N. W. R., 307; *Downing vs. Lewis*, 76 N. W. R., 900; *State vs. Associated Press*, 51 L. R. A., 151.

It would be stretching the statute entirely too far to hold that it covers combinations to fix the price of labor. That the practice of medicine and surgery is labor, no one, the court thinks, will question.

The trial court was right in discharging the plaintiff and its judgment must be and it is affirmed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.
New York Medical Journal

January 2

- 1 *Responsibility of the Family Physician Toward Tuberculosis. S. A. Knopf, New York.
- 2 *Benjamin Franklin from the Medical Viewpoint. C. G. Cumston, Boston.
- 3 *I. Thomson, New York.
- 4 nuth Subitrate. E. G. Beck, Chicago.
- 5 of Neck of the Femur. R. E. Soule, New York.
- 6 New Instrument for Estimation of Urinary Acidity. H. R. Harrower, Chicago.
- 7 Bluish Discoloration of Conjunctiva from an Indelible Pencil. A. Bray, Philadelphia.
- 8 Treatment of Enlarged Thyroid. A. Judd, New York.

1. The Family Physician in Tuberculosis.—Knopf lays down, as the duties of the family physician, immediate notification of the patient, if an adult, and of his friends on the finding of tuberculosis. Notification of health authorities where compulsory or permitted. Change of climate should depend on wishes of patient, subject to a consideration of his capacity for maintaining himself, or being properly maintained from home. Knopf discusses the care of tuberculous parents who have children but must be treated at home; also the marriage of the tuberculous. Tuberculous patients should be dissuaded from marrying, but he does not consider that legislative enactments against tuberculosis can have any other than an educational value. Pregnancy always aggravates the condition; often it may be necessary to empty the uterus, but prevention of procreation is better than cure. Treatment should never be conducted by the specialist alone, but always in association with the general practitioner. Knopf has inspected the working of the Emmanuel Tuberculosis Clinic and praises it highly, but points out that the success depends essentially on a combination of material aid with the confidence imparted by an assuring personality, which lead to absence of anxiety and hope of cure. Equal results can be attained by those who can command these factors with or without a religious basis.

2. Benjamin Franklin.—Cumston gives an interesting historical account of Franklin, the value of which is enhanced by reproduction of many of Franklin's writings, particularly his dialogue on gout, and his instructions on inoculation.

Medical Record, New York

January 2

- 10 *Injuries of the Neck of Femur in Early Life. R. Whitman, New York.
- 11 *Two Important Angioneuroses. A. J. Whiting, London.
- 12 Headaches of Ocular and Nasal Origin. C. Graef, New York.
- 13 A Table of Standard Weights for Women. F. S. Welsse, New York.
- 14 Is Food Containing Benzoates Injurious to Health? E. E. Smith, New York.

10. Injuries of Neck of Femur.—Whitman reports 15 cases, selected to illustrate four types of fracture of the neck of femur in early life, as they are likely to be presented for treatment. These four classes are:

1. The unusual cases, in which a correct diagnosis permits immediate correction of deformity by manipulation.
2. Cases in which the fracture has consolidated, the deformity being of the coxa vara type, which may be corrected by cuneiform osteotomy of the shaft without disturbing the joint.
3. Ununited fractures which require direct operation for the purpose of fixing the fragments.
4. Epiphyseal fractures in which as a rule the capsule must be opened.

He details the operative and other treatment, the aim of which, in all cases, has been functional cure, to which the removal of deformity by means adapted to its character and duration must be the essential preliminary. The results attained, as contrasted with disability, distortion and non-union even, in cases of the same favored class, in which the treatment or non-treatment had followed accepted methods, encourages the belief that the application of the same principles to all cases in which the condition of the patient permits local treatment, would lead to a corresponding improvement in the final results.

11. Angioneuroses.—Whiting discusses acroparesthesia and angioneurotic edema. The first is important because it is frequent and incapacitating. The second because it may be the cause of sudden death and may possibly be transmitted to the children's children. He cites four cases of the first form and three of the second.

Boston Medical and Surgical Journal

December 31

- 15 Tuberculosis of the Peritoneum. F. B. Lund, Boston.
- 16 Dementia Præcox, Paranoid, Associated with Bronchiectatic Lung Disease and Terminated by Brain Abscesses. (*Micrococcus catarrhalis*.) E. E. Southard and J. B. Ayer, Boston.
- 17 *Morris' Point of Tenderness as an Aid in Diagnosis. J. C. Hubbard, Boston.
- 18 Case in which Early Cervical Lymph Node Enlargement was the Sole Sign of Carcinoma of the Esophagus. O. W. H. Mitchell, Columbia, Mo.

17. Morris' Point.—Hubbard discusses the additional point in the diagnosis of appendicitis suggested by Morris (THE JOURNAL, Jan. 25, 1908, p. 278), and draws the following conclusions:

The abdominal lymphatic glands, becoming secondarily inflamed, cause tender areas. The area found tender on examination is somewhat of a guide to the organ primarily infected, and, therefore, in certain cases may be an aid in differential diagnosis.

In acute appendicitis, tenderness at Morris' point is of less importance than the symptoms caused by the appendix itself.

In chronic appendicitis, tenderness at Morris' point may be of distinct diagnostic value. Tenderness at this point, even though the only physical sign, makes the diagnosis of appendicitis by the rule of chance probable; when combined with tenderness at McBurney's point, the diagnosis becomes more certain. Its absence does not rule out appendicitis, and it may occur in other conditions.

The point has by no means the importance given to it by Dr. Morris.

Lancet-Clinic, Cincinnati

December 26

- 19 *Bismuth Paste in Treatment of Rectal Fistula. J. R. Pennington, Chicago.
- 20 Functional Tests of the Ear. D. A. Vanderhoof, Rockford, Ill.
- 21 *Why Operations for Bunions Fail, with Description of One That Does Not. J. L. Porter, Chicago.

19. This article was abstracted in THE JOURNAL, Nov. 7, 1908, p. 1908.

21. Bunion.—Porter enumerates five reasons for the failure of many operations for bunions, and describes his own technic, which for five years has given perfect satisfaction. A curved

incision two inches long, just below the edge of the callus covering the head of the metatarsus, is made with the foot elevated and the ankle constricted so as to produce a bloodless field. The capsule is excised in the same direction and extent, and the capsule and periosteum are stripped a little from the bone at their junction. About three-quarters of the articular surface is removed, including all the enlarged inner tuberosity. The head of the bone is not removed, because the deformity can be corrected without, shortening of the inner border is avoided, and motion is more free. The toe is pulled strongly inward and the tendon of the extensor proprius hallucis is divided subcutaneously at the joint. Very little pressure will then straighten the toe. The cavity is filled with gauze, with hot antiseptic solution. While the toe is held in its corrected position a mattress suture of strong iodine catgut is carried from the lower angle to the upper angle, returned through the upper angle, and brought out at the lower angle. The gauze packing is removed and the suture tied, approximating the upper and lower angles of the capsule incision, when, if the bone has been properly removed and the tendon divided, the toe will remain straight. The skin wound is closed with horsehair or catgut, and a thin gauze dressing put on. Over it is a piece of piano felt with a hole in it, like a bunion plaster, and a cigar box splint a trifle longer than the foot and wider than the toe is fastened to the inner border of the foot with adhesive plaster. It is then covered with a bandage, starting from the angle, and is fastened firmly to the foot and the toe firmly fastened to the splint. Unless there is some indication for doing so the dressing is not disturbed for two or three weeks. It is not safe to remove all restraint from the toe for at least six weeks. A straightlasted shoe, with a broad ball, must be insisted on even with women in the height of fashion. Porter well says: "If you can not dictate the shoes, don't do the operation."

Virginia Medical Semi-Monthly, Richmond

December 25

- 22 The Medical Profession as Represented in the United States Navy. P. M. Rixey, Washington, D. C.
- 23 *The Human Element in Medicine. P. Zenner, Cincinnati.
- 24 Relation of the General Practitioner to Public Health Work. E. G. Williams, Richmond.
- 25 Sprains and Sprain Fracture. M. St. John, Bristol, Tenn.
- 26 *Necessity for Diagnosis as Preliminary Step to Gynecologic Operations. C. R. Robins, Richmond.
- 27 Formation of Maternal Part of the Placenta. L. Loeb, Philadelphia.
- 28 External Uses of Magnesium Sulphate. J. S. Harrison, Elm City, N. C.
- 29 Case of Tetanus. H. C. Grant, Waynesboro, Va.
- 30 Plea for the Virginia Consumptive. R. H. Garthright, Vinton, Va.

23. Abstracted in Society Proceedings, THE JOURNAL, Nov. 21, 1908, p. 1807, and also published in the Lancet-Clinic, Nov. 7, 1908.

26. Abstracted in THE JOURNAL, Nov. 14, 1908, p. 1723.

Northwestern Lancet, Minneapolis

December 15

- 31 Report of 108 Consecutive Abdominal Operations without a Death. G. C. Barton, Minneapolis.
- 32 Diagnosis and Treatment of Incipient Tuberculosis. L. A. Nippert, Minneapolis.
- 33 Opsonins and Their Practical Value. H. L. Ulrich, Minneapolis.
- 34 Medical Inspection of Public Schools. M. J. Abbey, Mayville, N. D.
- 35 Operation for Hernia, Followed by the Ambulatory Treatment. A. E. Benjamin, Minneapolis.

Archives of Internal Medicine, Chicago

November

- 36 *Treatment of Thyroidism by a Specific Cytotoxic Serum. J. Rogers and S. P. Beebe, New York.
- 37 *Acidosis and Associated Conditions. J. Ewing, New York.
- 38 Hypernephroma. F. J. Hall, Kansas City.
- 39 *Paroxysmal Hemoglobinuria. C. F. Hoover and C. W. Stone, Cleveland.

36. Serum Treatment of Thyroidism.—Rogers and Beebe describe their work as the first attempt to treat disease in the human subject by means of a specific cytotoxic serum, and their conclusions, subject to revision as experience increases, are as follows: The serum has a specific effect in neutralizing the toxic action of the thyroid secretion; as a therapeutic

agent it gives results which can not, in many cases, be attained by any other medical means; not all cases presenting symptoms of thyroidism can be treated successfully with serum, because not all cases are purely hypertrophic in origin. The following types are favorable for serum treatment: Typical exophthalmic goiter in the early stages, including the incipient, the mild, the severe, and those extremely severe forms which develop very rapidly and have been described as the acute toxic type, resembling malignant endocarditis. Typical exophthalmic goiter in cases which may have existed for some time in subacute form with occasional exacerbations, but without marked secondary changes. The rapid amelioration of symptoms in the acute toxic cases, similar in most respects to the well-accepted instances of neutralization of toxin by antitoxin, is a weighty argument in favor of believing the symptoms to be due to the toxic effects of hyperthyroidism. The beneficial results of combined treatment, especially in the older cases, indicates a dysthyroidism as well as hyperthyroidism as a factor in the production of symptoms. The following types may require combined treatment: 1. The patients who develop thyroidism after reaching the age of 40 or 50 years: (a) those who, after middle life, show thyroidism for a varying period before the appearance of a goiter; (b) those who have borne an innocuous goiter for years and late in life develop signs of thyroidism. 2. Atypical forms of thyroidism: (a) men, and more often women, of any age who present many signs of thyroidism, but who often have a dry skin and bradycardia and are usually considered neurotic or neurasthenic; (b) patients with nervous and vasomotor signs of thyroidism, but who complain of a more or less constant headache accompanied in most cases by nausea and abdominal discomfort; (c) the psychopathic cases, the mental disturbances having no definite relation to the severity or type of thyroidism.

37. Acidosis.—The object of Ewing's paper is to present, first, the experimental basis of the doctrine of acid intoxication, and to consider the general problems as presented in the most pronounced form of acidosis, that of diabetes; second, to discuss the physiology and physiologic chemistry of the substances; and third, to deal with the various diseases in which acidosis occurs, and determine, so far as may be, the significance of acidosis, in such conditions as starvation, acute yellow atrophy, eclampsia, delayed chloroform poisoning, cyclic vomiting of children, gastrointestinal diseases, and phosphorus poisoning. It is Ewing's personal opinion that the experimental basis of the theory of acid intoxication is sufficiently well founded, and that the chemical studies of diabetes furnish adequate grounds for concluding that acid intoxication produces coma in diabetes, but the clinical evidence is unsatisfactory. The status of the whole subject of acid intoxication appears to depend on its position in diabetes.

39. Paroxysmal Hemoglobinuria.—Hoover and Stone make a report on two cases and draw the conclusion that, as the matter at present stands, we are justified only in saying that the hemoglobinemia which follows exposure to cold is due to some biologic product in the plasma, which in its behavior admits of the demonstration of every step in hemolysis as expounded by the side-chain theory of Ehrlich.

Surgery, Gynecology and Obstetrics, Chicago

November

- 40 *Experimental Study of Intraperitoneal Diffusion. J. L. Yates, Milwaukee.
- 41 Cystitis Glandularis et Follicularis. H. L. Kretschmer, Chicago.
- 42 Enormous Ovarian Cryst. O. J. Far, Des Moines, Ia.
- 43 *Etiology of Ectopic Gestation. C. D. Williams, Cleveland, Ohio.
- 44 Gangrene of the Vermiform Appendix. J. D. Malcolm, Edinburgh, Scotland.
- 45 *Nature of the Cancerous Process. R. Park, Buffalo.
- 46 Hemorrhages from the Stomach and Bowels Following Operations on the Gall Bladder and Appendix. A. D. Kohn, Chicago.
- 47 Acute Osteomyelitis. F. G. Dras, Chicago.
- 48 *Case of Gastric Tetany, Operation and Recovery. J. Y. Brown and W. Engelbach, St. Louis.

40. Intraperitoneal Diffusion.—Yates describes experiments undertaken to ascertain the effect of variations in bodily po-

sitions and in gastrointestinal activity on the degree and extent of diffusion of benign and toxic substances when introduced intraperitoneally as a suspension or solution; also to determine the influence of the degree of diffusion on the absorption of toxins. The substances dealt with were lamp black, moccasin venom and cobra venom. The following conclusions are drawn:

1. Intraperitoneal diffusion results from the operation of purely physical forces abetted by physiologic activities.
2. The greatest attainable restriction of this diffusion must result from the opposition of controllable physical force to the paths of greatest extension and the inhibition of physiologic activities.
3. Under similar conditions the rate of absorption varies directly with the extent of diffusion.
4. The restriction of diffusion and consequent absorption is best obtained by the action of generous doses of opium to reinforce the diminished activity in an empty alimentary canal, general bodily quiet with its resultant lessened respiration, and by the maintenance of that position of the body which will oppose the action of gravity to the direction of the most disadvantageous extension.
5. The absorption of toxins is dangerous in proportion to the rate and extent of that absorption, and, although this is complicated by pathologic processes, it is limited by the application of the principles stated above.

The clinical significance of these conclusions emphasizes the beneficial effect of absolute rest, the avoidance of everything that can stimulate peristalsis—nothing by mouth, and, by rectum, only small amounts introduced slowly; bodily quiet and avoidance of forceful or repeated pelvic and abdominal palpation. The importance of the administration of sufficient opium to guarantee freedom of movement is once more upheld, as a valuable means of controlling the diffusion which causes the early and most dangerous absorption. Postural methods are of value, but are of secondary importance compared to the maintenance of adequate blood pressure. External applications are of minor importance.

43. Ectopic Gestation.—Williams, from an exhaustive study, concludes that the presence of a precedent inflammatory reaction (found microscopically in all his specimens) is responsible for the onset of ectopic pregnancy. The presence of false diverticula of mucous-lined channels is the chief predisposing cause of tubal pregnancy in from 95 to 98 per cent. of cases—a gonococcus infection is a greater predisponent than any other. Observation shows the inflammatory change, etc., to be commonly bilateral; the frequent recurrence on the other side after removal on one tube is also noted. Therefore, if one tube—not being hopelessly occluded or too densely adherent—is to be saved for conception, it should be pointed out that there is a risk of ectopic gestation. The responsibility should be assumed by the patient or her friends.

45. Cancer.—Park insists that cancer is a specific disease, intensely infectious and transmissible, being caused by an extrinsic agent. He therefore urges that cancer must be treated much as we would treat a filth disease, especially when it has advanced to the ulcerative stage—namely, by the most efficient cleanliness. Cremation should supersede earth burial, and all soiled dressings and discharges should be destroyed by fire, while rooms, and even houses, inhabited by cancer patients should be most thoroughly disinfected, both during illness and after death. It would be well, also, to adopt Brand's suggestion that no food should be prepared or consumed with unwashed hands. In addition to this, it would appear that in some respects, at least, we ought to be at an advantage in treating this disease, since its earliest manifestations are local.

48. Gastric Tetany.—Brown and Engelbach emphasize the view that obstruction of the pylorus is the anatomic cause of this particular variety of tetany. This anatomic condition can be relieved by surgical means, thereby removing a hitherto fatal disease to the class of curable disease. The dilatation of the stomach that is present in this condition is as much a sequel of this obstruction as the tetany itself is. The authors describe in detail a case in which a practically immediate cure was pronounced by the short loop posterior gastroenterostomy suture method. They discuss the pathology, clinical course, diagnosis, prognosis and treatment. Under this last they emphasize prophylactic treatment by carefully caring for lesions of the pylorus before they cause any serious obstruction—an additional argument for a radical surgical treatment of chronic ulcers, cholelithiasis, etc. Dur-

ing the attacks, expeditious symptomatic treatment should consist of stomach lavage, hypodermoclysis, protoctysis and morphin hypodermically. The operation will depend on individual conditions, pyloroplasty or gastroenterostomy being the most generally applicable.

Annals of Surgery, Philadelphia

December

- 49 Inragination of Meckel's Diverticulum. H. T. Gray, London.
- 50 *Peritonitis in Children from Unknown Sites of Infection. C. M. Dowd, New York.
- 51 *Diffuse Septic Peritonitis, Due to Appendicitis. R. H. Fowler, New York.
- 52 The Interlocking Suture. R. C. Turck, Jacksonville, Fla.
- 53 Primary Sarcoma of the Peritoneum. J. M. Elder, Montreal.
- 54 Gunshot Wound of Abdomen Involving the Stomach and Jejunum, Complicated with Pregnancy. H. M. Lee, New London, Conn.
- 55 Appendicitis and Tetany. C. M. Goodrich, Brooklyn, N. Y.
- 56 Harrington's Operation of Intraperitoneal Cystotomy. C. L. Scudder and L. Davis, Boston.
- 57 Simultaneous Ligation of Both External Iliac Arteries for Secondary Hemorrhage Following Bilateral Ureterolithotomy. A. V. Moschowitz, New York.
- 58 *Operative Treatment of Acute Gonorrheal Epididymitis. F. R. Hagner, Washington, D. C.
- 59 *Finger Enucleation of the Tonsil. F. S. Mathews, New York.
- 60 Blastomycosis of the Spine. G. E. Brewer and F. C. Wood, New York.
- 61 Arteriovenous Anastomosis for Gangrene. J. C. Hubbard, Boston.
- 62 Modification of the Gritti Amputation with Special Reference to Nerve Blocking and Regional Anesthesia. J. M. Wainwright, Buffalo.
- 63 Skin Grafting of the Heel: By Means of a Flap from Opposite Thigh. C. J. Hahnegger, Watertown, Wis.
- 64 Some Deformities of the Hand. E. Alden, Los Angeles.
- 65 Fracture of the Os Magnum. A. H. Harrigan, New York.

50. Peritonitis in Children.—Dowd says that there are certain phases of peritoneal inflammation in children which differ enough from those ordinarily found in adults to justify their special consideration. Children are more likely to have rapidly spreading, insidious forms of peritonitis than adults are, since they are less likely to encapsulate the inflammation. They are much less likely to be constipated during its course, and hence have less of that tympanites which is so hard for the patient but which is a telltale to the doctor. They are much more likely to have associated cerebral symptoms, so that very competent observers are sometimes at a loss to know whether a given case is to be considered as primarily cerebral or abdominal. Again, pulmonary inflammation is often accompanied by localized abdominal pain and rigidity, so that children with beginning pneumonia are believed to have appendicitis. Pneumococcus peritonitis, either isolated or associated with other pneumococcus inflammations, is much more common in children than in adults. General gonococcus peritonitis is occasionally found. Tuberculous peritonitis is common, and sometimes presents symptoms which are most difficult to interpret.

51. Diffuse Septic Peritonitis.—Fowler discusses diffuse septic peritonitis due to appendicitis on a basis of sixty-nine well-marked cases. He draws the following conclusions:

1. We must look, for a lowering of the high mortality rate, to early operation rather than to any further development in mechanical intervention.
2. Early institution of postural drainage is of greater aid in preventing septic material from reaching the peritoneum than in preventing further absorption. Ambulance patients with nature are frequently brought to the hospital in the trunk should be elevated during lavage of the peritoneum. The manner of instituting postural drainage matters but little, provided that the pelvis is sufficiently low for gravitation to take place and the patient is comfortable.
3. Peritoneal lavage dilutes material, and when practiced should be continued until the cavity is partially closed. Plastic lymph not removed by irrigation or by simple lifting should not be disturbed.
4. Wound drainage: All cases of this nature should be drained. The ideal method in women is by a posterior colpotomy incision, by means of a large rubber tube.
5. Ochsner's treatment should be instituted after operation and Murphy's protoctysis should be practiced.
6. The abdomen should be opened by a small incision over McBurney's point, and the primary focus quickly dealt with. To prevent eversion the greatest gentleness in handling parts must be observed.

58. Abstracted in THE JOURNAL, July 11, 1908, p. 161.

59. Finger Enucleation of Tonsil.—Mathews describes a method of enucleating the tonsil by means of the finger, under etherization with a paper cone, for from two to four minutes, until the stage of primary anesthesia is reached without obliteration of pharyngeal or corneal reflexes. The

advantages claimed for the finger enucleation of tonsils as described are:

1. Whole tonsils are removed—a tonsillectomy.
2. The anesthesia is primary and of short duration.
3. The operation requires but a couple of minutes even when adenectomy is added.
4. The armamentarium is simple and cheap; only three instruments are used, a mouth gag, a Mackenzie tonsillotome, and an adenoid curette.
5. Only one assistant is needed, either physician or nurse; in the latter case one can give the anesthetic oneself.
6. Skill in enucleating tonsils with the fingers is easily acquired by any one familiar with the anatomy of the parts.
7. As it is done entirely by feeling one is not interfered with by the presence of blood and mucus in the throat.
8. Convalescence is no longer or more painful than after tonsillectomy.

University of Pennsylvania Medical Bulletin, Philadelphia

November

- 66 Peculiar Blastomycetoid Organisms Met in Two Cases of Parasitic Conjunctivitis. W. C. Posey, J. T. Carpenter, C. M. Hosmer and A. J. Smith, Philadelphia.
- 67 *Bactericidal Property of Milk. J. S. Evans and T. A. Cope, Philadelphia.
- 68 Transient Parasitism in Man by a Species of Rhizoglyphus. W. Pepper, A. J. Smith, Philadelphia, and F. W. Schnauss, Cecil, Ga.
- 69 Growth of Our Knowledge of Adams-Stokes Disease. E. D. Krumbhaar, Philadelphia.

67. Bactericidal Property of Milk.—Evans and Cope report an experimental study from which they draw the following conclusions:

1. Freshly drawn milk possesses a bactericidal activity toward certain micro-organisms, and an inhibitory activity toward others.
2. This activity is destroyed at 68° C. and materially injured at 55° C. It varies in different cows and lasts from 6 to 12 hours.
3. Coagulation and acidity of milk do not depend solely on the bacterial content. They are influenced by natural properties of milk which are soon overshadowed by the metabolic products of bacteria.
4. Sterile cow's milk freshly drawn is acid to phenolphthalein and increases very slowly in acidity, independently of bacterial metabolism, due, probably to the destruction of colostrum cells.
5. Results obtained in testing milk with mixed bacterial flora are influenced by bacterial antagonism.

New York State Journal of Medicine, New York

November

- 70 *Senile Heart and Blood Vessels. J. L. Heffron, Syracuse.
- 71 Perithelioma of the Choroid and Ciliary Body. J. B. Thomas, Brooklyn.
- 72 Mixed Infection in Pulmonary Tuberculosis. A. T. Laird, Albany.
- 73 Insects and Disease. J. B. Huber, New York.

70. Senile Heart and Blood Vessels.—Heffron points out that degenerative changes in the arteries are commonly observed in men past 50 years of age. Investigations into heredity as bearing on the physical makeup of man have demonstrated that the degree of resistance of the body tissues is determined at birth, and is man's endowment from a long line of ancestors. Moreover, the coats of the arteries have practically no rest from their labors, and the fact that their work is increased by physical exercise necessarily involves their eventual degeneration. Acute infectious diseases, tuberculosis, laborious occupations, nervous strain, auto-intoxication associated with the universal habit of overeating, degeneration of the ductless glands, syphilis and poisons (such as alcohol and lead), nephritis, diabetes and gout, are all discussed as etiologic factors. The process of degeneration is described, and its relation to thrombosis and embolism considered. In the examination of the blood vessels, the author recommends practicing palpation and comparing the results with those registered by the Riva-Rocci instrument. The heart of the aged is valid so long as it can do a good day's work without embarrassment to itself or the other organs; but the consideration of this subject taxes the good judgment of the physician greatly. The thing that has made precocious old age in this country is the intensity of the tasks that have been set for us. The first therapeutic resource is rest of body and mind. The body in bed, but the mind rebelling and keeping up high tension by its excitability is a bad combination. When cases are not extreme, and when the heart is doing good work against a beginning arteriosclerosis, it is not desirable to advise complete rest. Such exercise should be encouraged as will dilate the peripheral vessels and thus diminish arterial pressure—golf, gardening, walking, croquet, bicycle riding on the level, etc. When voluntary exercise is impossible, massage and Swedish movements are invaluable. The second therapeutic resource is the reform of the table:

meat, soups and extracts, teas and broths, must be forbidden. A little meat once a day will not do harm, but a bowl of the waste products of some other animal, introduces just what there is difficulty in eliminating. Fruits, especially apples, pears and grapes, are valuable. Alcoholic beverages should be cut off, but gradually in the case of those long accustomed to them. Coffee, tea and tobacco, if at all, should be used only in the strictest moderation. The patient must not take too much fluid. The water-drinking idea is much overdone. The aged afflicted with arteriosclerosis should avoid chilling. Heffron discusses the drug treatment and says that the one drug that has stood the test of time is potassium iodid, which may be given in doses of from 30 to 45 grains a day, preferably in milk, between meals and at bedtime. This remedy should not be begun until a certain degree of equilibrium has been established. A brisk saline cathartic is necessary. If given in concentrated solutions until watery stools are obtained it will eliminate so much fluid that the volume of the blood will be lessened, and thereby the amount of work for the heart will be diminished. For the pains, dry heat and in the case of the aged, morphin or codein preferably, will serve.

Texas State Journal of Medicine, Fort Worth

December

- 74 *Abdominal Reflexes from a Surgical Standpoint. W. A. Durringer, Fort Worth.
75 Aqueous Vitreous—Three Members of One Family Similarly Affected. W. A. Harper, Austin.
76 *Elements of Decay in American Civilization. F. E. Daniel, Austin.
77 *Some Neglected Phases of Malarial Pathology. W. Shropshire, Yoakum.

74. Abdominal Reflexes.—Durringer discusses the physiologic significance of the vicious circle of abdominal sympathetic plexuses, namely, celiac, renal suprarenal, phrenic, superior mesenteric, aortic and spermatic. He suggests the importance, in abdominal operations, of exploring the condition of accessible organs, in order that in this manner light may be thrown on clinical reflexes. He reports cases in which information quite different from what was expected was obtained in this manner at operation.

76. Decay in American Civilization.—Daniel discusses miscegenation, undesirable immigration, and alcoholism and insanity, and calls for a department of public health beyond the reach of politics and with an adequate appropriation.

77. Neglected Phases of Malarial Pathology.—Shropshire suggests that the toxin excreted by the malarial parasites must be a colorless chemical, acting like an escharotic on the first tissues which it comes into contact, usually the endothelial cells of the capillaries where sporulation takes place. This is his first neglected point. The second is that for some at present unexplained reason the parasites have the power of congregating in certain localities, and there pursuing their usual life cycle. The effect of this is twofold. First, the congregation of parasites is probably the determining factor in the severity and danger of the paroxysms; and second, the location of this grouping for sporulation determines the malarial manifestations—cerebritis, nephritis, gastritis, neuritis, etc.

Journal Tennessee State Medical Association, Nashville

December

- 78 Adenoids. C. H. Davis, Knoxville.
79 *Retention of Urine in a Female Child. T. J. Happel, Trenton.
80 Unusual Symptoms in Disease of the Appendix. W. A. Bryan, Nashville.
81 Acute Dilatation of the Stomach. C. P. McNabb, Knoxville.
82 Abdominal Operations During Pregnancy. J. A. Gaines, Nashville.
83 Professional Courtesy and Unity. E. H. Jones, Murfreesboro.

79. Retention of Urine.—Happel reports a case of retention of urine in a new-born female child, and from a consideration of the case emphasizes the following points: 1. The meatus urinarius is not always to be found where you are told to look for it. 2. Although a two months' old child normally urinates every 30 minutes, the child in the case reported did not pass a drop of urine in at least sixty hours. 3. Aspirating the bladder on two successive days did no harm, and was adopted in preference to anesthetizing the child for catheteri-

zation. 4. The successful catheterizing of the child under an anesthetic when the bladder, being reduced in size, ceased to drag the meatus upward. 5. The catheter was retained in the bladder for forty-eight or more hours. 6. To make the bladder resume its function, the catheter was stopped up for several hours, then the plug removed and the urine allowed to escape, thus encouraging the bladder contraction. 7. The small amount of inflammatory trouble resulting from the use of the aspirator and the retention of the catheter, with the prompt response to hexamethylenamin and washing out of the bladder, are worthy of note.

Southern Medical Journal, Nashville

November

- 84 Treatment of Compound Fractures. D. Eve, Nashville.
85 Decompressive of Intracranial Pressure. G. Ala.
86 Cases of Pel shville.
87 *Case of Blas Nashville.
88 Diagnosis of Sarcoma. W. A. Bryan, Nashville.
89 *Intestinal Autointoxication. A. Dixon, Henderson, Ky.
90 Complete Operation for Suppurative Appendicitis. G. A. Hendon, Louisville, Ky.
91 Internal Secretions. J. P. Keller, Nashville.

87. Blastomycosis.—Litterer reviews the history of our knowledge of blastomycosis and reports a case of the localized affection cured by operation, with pathologic, bacteriologic and microscopic pathologic reports. He reports the case for the following reasons: First, to stimulate a more thorough search for the condition, which is certainly within our midst unrecognized. Second, because of its geographic peculiarity, it being largely confined to a few localities in America, particularly in the Mississippi Valley, though isolated cases have been reported from practically every quarter of the globe. Third, to emphasize the fact that the disease is commoner than the recorded cases would seem to show, due to its resemblance to many of the less rare conditions, such as all forms of tuberculosis, epithelioma, mycosis fungoides, vegetating syphiloderm, etc. Fourth, from the fact that so far as he is able to determine in the literature, this is the first recorded case this far south in which the diagnosis has been not only made by microscopic findings, but confirmed by the isolation and cultivation of the pathogenic yeast.

89. Intestinal Autointoxication.—Dixon reviews the writings of Bouchard and Brunton on intestinal intoxication, and discusses the pathology of the various forms. Nature gives us the cue in treatment, by inducing vomiting and purging, which are plain signs that the economy is trying to rid itself of noxious material that interferes with normal metabolism. The stomach should be washed out with sterilized hot water and a dose of castor oil given; Dixon has substituted this for colonic irrigation, which he believes to be a delusion, the tube simply coiling on itself so that no water ever reaches the colon. The castor oil is followed by copper arsenite, guaiacol carbonate or bismuth subgallate, and a hypodermic of morphin, $\frac{1}{4}$ gr., and atropin 1/150 gr. A rigid abstinence from solid food for a few days is required. Many neurasthenics are benefited by a long sea voyage on a slow vessel. The Weir Mitchell treatment is suitable in many cases. Suggestion, without the various additions that in composition constitute the mental therapeutic properties, is of value.

Interstate Medical Journal, St. Louis

November

- 92 *Cause of Failure in the Treatment of Tuberculosis. F. M. Pottenger, Monrovia, Cal.
93 *Nutritive Disturbances from the Fat in Milk. J. Zahorsky, St. Louis.
94 Addison's Disease. L. H. Hempelmann, St. Louis.
95 An Interesting Gall Bladder Case. W. S. Deutsch, St. Louis.
96 The Case of Jonathan Swift. G. M. Gould, Ithaca, N. Y.

92. This article also appeared in the *Lancet-Clinic*, Nov. 7, 1908.

93. Fat Indigestion in Children.—Zahorsky discusses the older view, that the greatest difficulties to digestion in infants are offered by the proteids, and contrasts it with the latter view, that milk indigestion means fat indigestion, and that an enterogenic acidosis lies at the root of the trouble. He reports cases, the history of which he can not reconcile

with the acid-intoxication hypothesis. He is still unable to attribute all the faults of indigestion to the fat, yet believes that we have been laying too much stress on the proteids. Skimmed milk does not solve our difficulties. It is a well-known clinical observation that most infants are constipated on cow's milk that is not decomposed by bacteria. Certified milk usually induces constipation and the stools are hard and light. Yet these infants do well and escape nutritive disorders. The physiologic chemistry of digestion and metabolism must be thoroughly elucidated, but the mistake has been made of overthrowing or disregarding clinical experiences of ages, because test tubes do not show the inferred reactions. "The history of the past shows that the clinical phenomena recorded must be explained by the laboratory and not set aside."

Monthly Cyclopedia and Medical Bulletin, Philadelphia

November

- 97 Treatment of Tuberculosis of the Lungs. J. Walsh, Philadelphia.
- 98 Diagnosis and Treatment of Hemorrhoidal Disease. C. F. Martin, Philadelphia.
- 99 Some Aspects of Alcoholism. A. O'Malley, Philadelphia.
- 100 Foreign Bodies in the Iris. G. O. Ring, Philadelphia.
- 101 *Present Status of the Opsonic Theory and Bacterial Therapy. N. Gildersleeve, Philadelphia.
- 102 Acne Rosacea and Psoriasis. J. V. Shoemaker, Philadelphia.
- 103 Relation Between Retinal Hemorrhages and High Arterial Pressure. L. W. Fox and W. C. Batroff, Philadelphia.
- 104 Bronchial Asthma. H. J. Smith, Philadelphia.

101. **Opsonic Theory.**—Gildersleeve has carefully watched the results following the use of both stock and autogenous vaccines, and concludes that autogenous vaccines are in most cases of more value than stock, although he has had better results with polyvalent gonococcus vaccine than with one from the patient. How long vaccines retain their potency is unknown. In view of the present unsettled condition, he applauds those manufacturers who refuse to market the vaccines. The article concludes as follows: The vaccines have come to stay, and we can only ask the profession to be patient and not condemn bacterial therapy because they can not employ it through lack either of knowledge or of time, not to employ it improperly, but to leave it in the hands of those skilled in its use, until the time comes when definite rules can be laid down for the use of vaccines, so that the practitioner can control the inoculations by clinical manifestations.

Therapeutic Gazette, Detroit

December

- 106 *Prevention, by Operation and Other Methods, of Retroversion of the Uterus After Childbirth. E. P. Davis, Philadelphia.
- 107 Three Cases of Rupture of the Uterus. F. C. Hammond, Philadelphia.
- 108 Some Relations of the Thyroid Gland. S. P. Beebe, New York.
- 109 Personal Experiences in the Surgery of Simple Types of Goiter. J. M. Wainwright, Buffalo.
- 110 Use of the X-Ray in Exophthalmic Goiter. J. C. Price, Scranton, Pa.
- 111 Surgical Treatment of Malignant Goiter. E. Martin, Philadelphia.

106. Published in the *Pennsylvania Medical Journal*, November, 1908, and abstracted in *THE JOURNAL*, Dec. 19, 1908, p. 2189.

Louisville Monthly Journal of Medicine and Surgery

December

- 112 *Present Status of Organotherapy. D. L. Edsall, Philadelphia.
- 113 *Practical Notes on Vesical Tumors. G. F. Lydston, Chicago.
- 114 Atypical Typhoid. B. C. Frazier, Louisville.

112, 113. Published in the *Lancet-Clinic*, Nov. 28, 1908, and abstracted in *THE JOURNAL*, Dec. 19, 1908, p. 2186.

American Journal of Orthopedic Surgery, Philadelphia

November

- 115 Present Day Conception of Acute Anterior Poliomyelitis. B. Sachs, New York.
- 116 Ultimate Results in Surgical Treatment of Infantile Paralysis. E. H. Bradford and R. Soutter, Boston.
- 117 Muscle Transference with Particular Reference to Operative Technic. S. J. Hunkin, San Francisco.
- 118 *Surgery of the Peripheral Motor Nerves. A. S. Taylor, New York.
- 119 Volkmann's Ischemic Paralysis and Contracture. R. H. Sayre, New York.
- 120 *Paralysis of Shoulder: Its Mechanical Treatment. D. Silver, Pittsburg, Pa.
- 121 *Thyroid Spine. G. B. Packard, Denver, Colo.

- 122 *Actinomycosis of the Ribs and Vertebrae. J. K. Young, Philadelphia.
- 123 Congenital Scoliosis. N. Allison, St. Louis.

118, 120, 121. Abstracted in *THE JOURNAL*, Aug. 8, 1908, pp. 525, 526, 528.

122. Abstracted in *THE JOURNAL*, July 25, 1908, p. 344.

Buffalo Medical Journal

December

- 124 *Extrauterine Pregnancy and Report of Cases. H. E. Hayd, Buffalo, N. Y.
- 125 Anesthesia. C. C. Frederick, Buffalo, N. Y.
- 126 Artificial Dilatation of the Cervix in Obstetrics. J. E. King, London.

124. A similar paper by this author was abstracted in *THE JOURNAL*, Oct. 17, 1908, p. 1355.

Journal of Ophthalmology and Oto-Laryngology, Chicago

November

- 127 *Ophthalmia Neonatorum. W. O. Nance, Chicago.
- 128 Cholesteatoma Causing an Erosion into the Horizontal Semi-circular Canal, with Methods for Examining the Vestibular Apparatus. G. E. Shambaugh, Chicago.
- 129 Abscess of Inferior Turbinal. K. W. Baldwin, Philadelphia.

127. Abstracted in *THE JOURNAL*, June 27, 1908, p. 2152.

Journal Kansas Medical Society, Kansas City

November

- 130 Hysteria. O. S. Hubbard, Parsons.
- 131 Acute Dilatation of the Stomach. H. Wilkinson, Kansas City.
- 132 An Iniencephalus. E. T. Shelly, Atchison, Kan.
- 133 The Roentgen Ray as a Diagnostic and Therapeutic Aid. E. H. Skinner, Kansas City, Mo.
- 134 Injuries to an Eye. W. H. Graves, Pittsburg, Pa.
- 135 Osteopathy and the Public Press. F. A. Carmichael, Goodland.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

December 19

- 1 *Mitral Stenosis. Sir J. Barr.
- 2 *Occurrence of Heartblock in Man and Its Causation. T. Lewis.
- 3 Retardation of the Pulse Wave in Aortic Regurgitation. W. Broadbent.
- 4 Malformations of the Hind End of the Body (continued). A. Keith.

1. **Mitral Stenosis.**—Barr confines his attention to the debatable points in the clinical manifestations of the disease. The disease is easily diagnosed apart from the murmur (presystolic or auricular-systolic), but such diagnosis is very imperfect unless it takes into account the extent of the lesion and its effects. Rheumatism holds the first place in its causation. Children are very liable to rheumatism, though the other manifestations may escape notice and endocarditis seem to be the only gross expression. Mitral stenosis is frequently associated with chorea. It is more common in females than in males, because these two predisposing diseases are more common. Its course is usually slowly progressive, and while it ordinarily leads to the death of the individual, under proper care and treatment it is quite compatible with a fairly long existence. The deformity produced in the valves is of two kinds, the funnel form and the buttonhole. Contrary to other authorities, Barr finds that while the buttonhole variety is scarcely known in children it is not much more common in the adult than the funnel form. In the evolution of mitral stenosis, excessive calcium ions in the blood play a very important part. In diagnosis it is necessary to do more than recognize a pre-systolic murmur; we want to know the nature of the obstruction, the size of the orifice, and the effect on the circulation. When the murmur is well pronounced the interference of the physician is uncalled for. In many cases in which it is absent, judicious treatment may be of great value. Sometimes the only murmur is a mitral systolic, due to regurgitation. The treatment of these two conditions is essentially different. Barr discusses the physical diagnosis at great length. He points out that it is not sufficiently recognized that the heart is not a single organ, but two organs, each of which has its own definite work to perform, linked together for mutual assistance in cases of stress or difficulty. Barr says that the myogenic theory of contraction

is plausible and deserves to be true, but like a good many other theories, it has not been considered necessary to establish the truth of the premises; not one scintilla of evidence has ever been adduced to show that the muscle cells, or any node or set of cells, generate any stimulus which excites contraction, and there is no information as to the nature of the stimulus. This theory tends nowhere but to the grave, whereas, if one believes that the rhythmic contraction of the heart is maintained by the diastolic tension, one can often save lives by putting the theory into practice. Many deaths from syncope could be averted by simply hanging the individual up by the feet. This has been long known in chloroform syncope, but it should be firmly inculcated in every ambulance course.

2. Heart Block.—Lewis discusses the evidence for conduction by muscular continuity in mammalia, the evidence of heart block in man, and the evidence for associating heart block with damage to the auriculoventricular bundle. He concludes: Surveying the evidence as a whole, we may say that, knowing that heart block can occur in man, and that it may be associated with lesions of a bundle which has been shown to be essential to conduction in the lower animals, we are justified in concluding that heart block in man may arise as the result of such a lesion; but we must bear in mind that such a conclusion is open to limitation, and we are not justified at present in assuming that it will invariably arise from such a lesion, or that it is invariably dependent on such a lesion.

Lancet, London

December 19

- 5 *Treatment of Wounds. Sir W. W. Cheyne.
- 6 Treatment of Gout by Thionine Acid. R. Fenner.
- 7 Otosclerosis: Etiology, Diagnosis and Treatment. A. R. Tweedie.
- 8 *Mercurial Reaction as an Element in Diagnosis of Syphilis. F. Curioni.
- 9 Ruptured Small Intestine. L. E. C. Norbury.
- 10 Method of Performing Abdomino-Perineal Excision for Carcinoma of the Rectum and Terminal Portion of the Pelvic Colon. W. E. Miles.
- 11 Treatment in a Case of Arthritis Deformans. F. Booth.
- 12 Streptococcal ("Septic") Throats. J. O. Hollick.

5. Treatment of Wounds.—Cheyne discusses the evolution of the modern treatment of wounds, and sums up his criticism on the most recent ideas, by saying that the pendulum has swung too far in the direction of the avoidance of antiseptics, and that the reasonable use of all the means at our disposal for securing asepticity of wounds will furnish more constant results. He takes exception to the employment of dressings which do not contain an antiseptic in sufficient amount to render the discharges that flow through them unsuitable for the growth of bacteria, also to the absence during the operation of antiseptic solutions in which hands, instruments, etc., may be washed from time to time to insure a continued asepsis, and he considers the substitution of gauze plugs for drainage tubes, more especially for the drainage of abscesses and sinuses, a retrograde step. Minor points are the use of swabs instead of marine sponges and the avoidance of catgut. The extreme view has, however, done good, by directing attention to the value of heat as a disinfectant, to the sterilization of instruments, etc., and to the diminishing of dust; but he thinks an attempt to treat wounds without any antiseptics a very unnecessary complication, for it adds to the difficulty of securing asepsis; and if the surgeon has to keep his mind intently fixed simultaneously, on two exacting processes, surgical technic and bacteriologic technic, he is the more apt to fall down on one of them. Cheyne says that his own results and those of other surgeons who use antiseptics judiciously are in every way as good as those obtained by the more elaborate aseptic precautions. They are not troubled with sepsis or stitch abscess.

8. Mercurial Reaction in Diagnosis of Syphilis.—Curioni, noting during the treatment of a number of suspectedly syphilitic patients that some of them were strangely intolerant of mercury, and that these patients generally proved to be non-syphilitic, the idea occurred to him that persons with syphilis tolerated mercury much better than normal subjects. He therefore made comparative tests of the elimination of

mercury in the urine of the healthy and of the syphilitic. An injection of 0.01 gm. of mercury perchlorid in 1 c.c. of distilled water was given about 11 a. m. to the two set of subjects. The urine was collected at 7 p. m., 5 or 6 hours later, and the following morning between 8 and 9. The specific reaction was then tested by Vitali's method, which the author details. As a result of these investigations Curioni formulates the following conclusions:

1. The mercurial reaction in the urine of the healthy is much more evident than in the syphilitic, in which sometimes there is no result at all; which means that the elimination of mercury in the urine of the syphilitic is always much slower than in the healthy.
2. The mercurial reaction is nil, or nearly so, in cases of syphilis recently contracted, especially when symptoms are apparent; and the reaction is only slightly evident, and never so well as in normal cases, in syphilitics in whom two or three years have elapsed since the appearance of the ulcer.
3. Finally, in cases of long standing, of say, 10 or 12 years, the mercurial reaction is as evident as in normal cases. (Mercurial reaction is positive.)

Curioni believes early treatment inadvisable, because the action of the antigen being paralyzed by the mercury the production is stopped of the special antibodies which will be the natural defense of the organism, provided for the true destruction of the virus. He suggests the possible utility of his test not only for clearing up suspicious cases, but in ascertaining whether a person who presents no symptoms of acquired syphilis has at some time past been infected; also in tabes or progressive paralysis not from hereditary syphilis.

Medical Press and Circular, London

December 16

- 13 Ophthalmia Neonatorum. S. Mayon.
- 14 Use of Colloidal Mercury by Intravenous and Intraspinal Injection, and Its Mode of Action. P. Claisse and E. Joltrain.
- 15 Relation of Clinical Laboratory Methods to the Work of the General Practitioner. R. Weiss.
- 16 Mammary Carcinoma and Its Surgical Treatment. E. H. Taylor.

Clinical Journal, London

December 2

- 17 *Suprapubic Prostatectomy. W. B. Clarke.
- 18 *Poisoning from Some Metals and From Dust. F. M. Sandwith.
- 19 Case in which Portion of a Lung was Excised. J. R. Morison.
- 20 Cancer. T. Bland-Sutton.
- 21 Acute Lymphocœthemia in Children. T. R. C. Whipman.
- 22 Muscular Atrophy. A. Whiting.

17. Suprapubic Prostatectomy.—Clarke considers the suprapubic operation destined to supersede the perineal, because it embodies a great surgical principle, namely, "see what you are about and don't be content with feeling that which it is quite possible to see." He describes the technic of the operation, and says that he has purposely refrained from alluding to the time honored custom of rectal examination in cases of prostatic enlargement, because in most instances it is absolutely useless. "What you want to determine is how far the urinary outflow is obstructed and this can only be discovered by the passage of a catheter; the size of the prostate is no gauge of its obstructive power."

18. Metal and Dust Poisoning.—Sandwith discusses various industrial diseases, arsenic, copper, brass and mercury poisoning, the diseases of iron and steel workers, especially steel grinding, the health of underground railway workers, workers in cotton mills, linen and jute factories, poisoning by African boxwood, rag sorters' disease, chimneysweep's cancer, and the condition of tin plate workers.

Australasian Medical Gazette, Sydney

October

- 23 The Mental Factor in Medical Practice. G. E. Rennie.
- 24 *Prophylaxis of Puerperal Eclampsia. D. Hardie.
- 25 *Albuminuric Retinitis of Pregnancy. J. L. Gibson.
- 26 Postdiphtheritic Heart Failure. J. M. Gill.
- 27 Gastroenteritis in Children—Causes—Prophylaxis and Treatment. E. A. Officer.
- 28 Diagnosis of Diseases of the Urinary Tract. R. C. Foster.
- 29 Fatal Case of Arsenic Poisoning. C. H. L. Lawes.

24. Puerperal Eclampsia.—Hardy discusses the prophylaxis of this disease and as measures for the treatment of impending eclampsia, places first, absolute withdrawal of food, even milk, water alone being given for from 36 to 48 hours, when

a milk diet may be resumed. Second, an enema of saline fluid into the lower bowel every 2 to 4 hours. Third, the skin must be made to act by plenty of blankets and hot bottles. When free perspiration is induced the question of the advisability of terminating pregnancy must be decided. The object is, wherever or whatever the *fons mali* may be, "to throttle down the inlet and open well the exhaust." He urges the necessity of examining the urine weekly from the beginning of the eighth month, and in primigravidae the seventh month onward, and twice a week if suspicious symptoms arise.

25. **Albuminuric Retinitis of Pregnancy.**—Gibson reports cases and concludes that it is the duty of the medical attendant, when albuminuric retinitis supervenes, to bring on labor without delay, and to refuse to take the responsibility of the case if his advice is not adopted.

Journal of Tropical Medicine, London

December

- 30 Dengue in Fiji. A. Montague.
- 31 Guinea Worm. W. H. Graham.
- 32 Hemogregarines of Snakes (to be continued). L. W. Sambon and C. G. Seligmann.
- 33 Investigation of Cerebrospinal Fever in the Northern Territories of the Gold Coast in 1908. A. E. Horn.

Glasgow Medical Journal

December

- 34 Traumatic Rupture of Small Intestine. G. H. Edington.
- 35 Gastrotomy for Foreign Body. D. Macartney.
- 36 Medical Practice in Pondoland, South Africa. J. G. Millar

Journal of Laryngology, Rhinology and Otology, London

December

- 37 Effect on Vocal Pitch of the Contracture of the Thyroary tenoid Muscles. J. D. Lithgow.
- 38 Cases of Laryngostomy. Sargnon and Barlatier.
- 39 Condition of the Vestibular Apparatus in a Series of Cases of Deafness of Non-Suppurative Origin (continued). N. H. Pike.

Bulletin de l'Académie de Médecine, Paris

November 24, LXXII, No. 38, pp. 405-433

- 40 *Sunlight Treatment in Mountain Climate. (Les cures solaires directes, dans les stations d'altitude.) H. Hallopeau and Rollier.

December 1, No. 39, pp. 435-466

- 41 *Action of Sodium Cinnamate in Pulmonary and External Tuberculosis. (De l'action du cinnamate de soude dans la tuberculose pulmonaire et les tuberculoses externes.) P. Reynier.
- 42 Respiratory Interchanges in the New-born and Index of Oxygenation. (Les échanges respiratoires des nouveau nés et l'indice d'oxygénation.) M. G. Weiss.

40. **Treatment of Surgical Tuberculosis by Direct Sunlight in the Mountains.**—Rollier presented to the Academy 185 photographs of 35 tuberculous patients treated by heliotherapy at a high altitude. His experience includes nearly 150 cases of tuberculosis of various locations, exclusive of the lungs, and it has convinced him that the mountain sunlight has a remarkable curative action on tuberculous processes in general. It seems as if the tubercle bacillus ceases to find a favorable medium for its proliferation as the tissues and organic juices become modified by the conditions in the mountains.

41. **Sodium Cinnamate in Tuberculosis.**—Reynier and Blusson have been giving sodium cinnamate a thorough trial in 21 cases of pulmonary and external tuberculosis, the outcome representing, they think, positive progress in the treatment of the disease. In 10 cases the bacilli vanished from the sputum and the stethoscope showed approximately normal conditions out of the 19 patients who showed the most benefit. Their experience seems to suggest that this drug combines with the toxins engendered by the bacilli, transforming them into non-toxic compounds. Favorable voices have been raised here and there since Landerer first proclaimed the efficacy of sodium cinnamate, and it has been successfully used in Spain, but Reynier asserts that it has not been given generally the attention it deserves. He prefers to give the drug in subcutaneous or intramuscular injections, up to a maximum of 0.3 or 0.4 gm. (from 4.5 to 6 grains) in two days. His patients were mostly adults.

Presse Médicale, Paris

November 28, XVI, No. 96, pp. 769-776

- 43 Experimental Autodigestion of the Stomach. (Auto-digestion expérimentale de l'estomac.) A. Frouin.

December 2, No. 97, pp. 777-784

- 44 *To Reduce the Mortality from Cancer of the Uterus. F. Jayle.
- 45 Light-Colored Liver Cells. (Etat clair des cellules hépatiques.) P. Ramond.

December 5, No. 98, pp. 785-792

- 46 *Criminal Law and Psychiatry. (Droit criminel et médecine mentale.) M. Dupré.

December 9, No. 99, pp. 793-800

- 47 *Adamantine Epithelioma. L. Boidin and C. Delval.
- 48 Tetanus Originating in the Uterus. A. Brault and G. Faroy.
- 49 Isotonic Collyria. A. Cantonnet.

44. **Causes of Mortality from Uterine Cancer.**—Jayle's experience with hundreds of cases of cancer of the uterus has confirmed the fine results from extensive excision when the cancer is localized in the uterus, but cancer still localized in the uterus is extremely rare, as patients do not apply to the surgeon until too late. They are misled by the false and dangerous notion that there may be a physiologic hemorrhage from the uterus during or after the menopause. He advocates that every woman over 35 should be examined by a physician every three months, especially in case of cancerous antecedents or a chronic affection in the uterus or adnexa, and particularly in case of cervical metritis. Even when the cancer has passed beyond the uterus, radical removal may give long survival and there need be no hesitation about operating, even in somewhat advanced cases, if the general condition is good and the patient not too young. The iliac glands should be removed with the uterus, especially in young women with cancer of the cervix.

46. **Insane Criminals Before the Law.**—Dupré reviews the history of the insane condemned in ignorance of their abnormal mental condition. He says that during the five years 1890-1895 255 insane persons were sentenced in France for deeds for which they were not responsible, as directly established later, and he urges the necessity for a clinical course in psychiatry before a lawyer is admitted to the practice of criminal law or to the bench.

47. **Adamantine Epithelioma.**—Boidin and Delval describe two cases which confirm the good prognosis and the origin of these tumors in paradental, epithelial debris scattered around the jaw. Extensive excision of the tumor, without encroaching much on sound tissue, is sufficient and recurrence need not be feared. All the experience to date sustains the assumption that the tumor never spreads to the glands. Differentiation is sometimes difficult in the superficial form, but histologic examination will remove all doubt. They describe two cases in detail, with illustrations of the findings.

Revue de Médecine, Paris

November, XXVIII, No. 11, pp. 943-1008

- 50 Paroxysmal Cyanosis with Congenital Malformation of the Heart. (Cas de malformation congénitale du cœur avec cyanose paroxystique.) A. Espine and H. Mallet.
- 51 Syndromes of Insufficiency of Several Glands. (Syndromes d'insuffisance pluriglandulaire.) H. Claude and H. Gougerot. Commenced in No. 10.
- 52 The Urine in Gastrointestinal Autointoxication. (L'urine dans l'intoxication digestive.) H. Labbé and G. Vitry.
- 53 *Naturally Faint Pulse. (La microsphymie.) C. Richet and F. Saint Girons.
- 54 Pathogenesis of Billous Hemoglobinuric Fever. (Pathogénie de la fièvre hémoglobinurique, bilieuse.) S. J. Kanellis.

53. **Habitually Faint or Almost Imperceptible Pulse.**—Richet and Saint Girons have observed sixteen cases of what they call "microsphymia." It seems to be due to spasmodic contraction of the muscular layers of the vessels, not to any anatomic lesion. They have never encountered this microsphymia except in idiots, and predominantly in those with trophic disturbances and an inherited taint—tuberculosis, syphilis, alcoholism or lead poisoning.

Semaine Médicale, Paris

December 2, XXVIII, No. 49, pp. 577-588

- 55 Phlegmonous Gastritis. L. Chelnisse.
- December 9, No. 50, pp. 589-600
- 56 The Placenta Theory of the Origin of Eclampsia. R. de Bovis.

Beiträge zur Klinik der Tuberkulose, Würzburg

XI, No. 2, pp. 79-269. Last indexed Dec. 12, 1908, p. 2095

- 57 *Specific Hypersusceptibility and Immunity to Tuberculosis. (Spezifische Ueberempfindlichkeit und Tuberkuloseimmunität.) P. H. Römer.

- 58 Complement fixation by Antibody in Blood of the Tuberculous (Die durch Komplementbindung nachweisbare Tuberkulose Antikörper im Blute von Phthisikern) S. Cohn
- 59 *Tuberculous Infection and Clinical Tuberculosis (Tuberkulöse Infektion und tuberkulöse Erkrankung) E. Meissen
- 60 Bovine Tubercle Bacilli in Sputum of Consumptives and Their Importance for Treatment of Chronic Pulmonary Tuberculosis (Vorkommen von Pellsuchtbazillen im Sputum der Phthisiker und die Therapie der chronischen Tuberkulose) oder Heilung der Lungentuberkulose) N. P. Tendeel
- 61 Importance of Vitality of Pulmonary Tuberculosis (Die Bedeutung der Vitalität der Lungentuberkulose) N. P. Tendeel
- 62 Diagnostic Uncertainty of Tuberculin Reaction (Diagnostische Unsicherheit der Tuberkulinreaktion) O. Roepke

57. Specific Hypersusceptibility and Immunity to Tuberculosis.—Romer's further research confirms the fact of the resistance of tuberculous individuals to renewed infection from without, and he presents arguments to show that this is connected with hypersusceptibility to the tubercle bacillus and also with immunity. Some of the animals with slow, chronic tuberculosis bore renewed infection without appreciable injury, although it was rapidly fatal for the controls. That is, the chronic tuberculosis conferred immunity on the animals. He compares it to a fortress conquered by surprise but finally driving out the invaders, although still suffering from the consequences of the invasion. Henceforth it is on the alert, and opposes effectual resistance to renewed invasion, unless the invaders come in overwhelming force. He regards an intense reaction to the local tuberculin test as a good omen. A tuberculous infection, if weak, and if it does not materially affect the health of the individual, not only is not harmful, but is directly useful, as it protects against further infection. The logical consequence is that severe, massive infection must be warded off, but that it is futile and useless to attempt to protect mankind from all contact with the tubercle bacillus. The campaign against tuberculosis should be directed against phthisis rather than against tuberculosis. When one member of a family has phthisis, the children are more exposed to contagion from it than the other members of the family. The great majority of mankind have been infected with tuberculosis before reaching adult age, and the aim should be to prevent massive infection of children. The battle should begin in the home, in the family, where it threatens most the younger children.

59. Tuberculous Infection and Tuberculosis.—Meissen protests against the assumption of direct contagion of tuberculosis, showing that those most exposed seldom acquire the disease, nurses, consorts and the residents of health resorts. He argues that as one is protected against the invasion of tubercle bacilli, which form small, latent foci, which may possibly but not necessarily lead to clinical tuberculosis. For the bacilli to develop clinical manifestations, predisposing factors are necessary. The latter are thus really responsible for the tuberculosis; the tubercle bacillus is only the remote cause. Tuberculous infection and tuberculosis are far from synonymous terms. The prospects for successfully combating the disease are shown to be much brighter with this conception.

Berliner klinische Wochenschrift

November 3, XLIV, No 48, pp 2123-2176

- 63 *Gastric Ulcer Perforating into the Pancreas (Behandlung eines in das Pankreas perforierten Magengeschwürs) R. Klapp
- 64 *Treatment of Neuralgia with Injections of Alcohol (Alexander)
- 65 Bilateral Crural Paralysis After a Gynecologic Operation (Beidseitige Cruralparalyse nach gynäkologischer Operation) K. Mendel and B. Wolf II.
- 66 Digestion of Living Tissue (Zur Frage der Verdauung lebenden Gewebes) H. Kathe
- 67 Micromelic Dwarf Growth, not Congenital (Leber das mikromelische Bild der Achondroplasia bei Erwachsenen und eine ihr sehr ähnliche bisher noch nicht beschriebene Form von mikromelischen Zwergwuchs bei einer 56-jährigen Frau) D. Schrumpt
- 68 *Aortic Insufficiency and Syphilis. J. Citron
- 69 The Healing Orthopedic Technique. M. Bohm
- 70 Pathologic Anatomy of Appendicitis (Wurmfortsatzentzündung) R. Beltzke

63 Treatment of Gastric Ulcer Perforating into the Pancreas.—Klapp reports a case of gastric ulcer with symptoms suggesting cancer. On opening the abdomen nothing abnormal was found on the stomach until the discovery of a tumor in the rear wall, just below the cardia, adherent to and per-

forating into the pancreas. The cachexia was so extreme and the site was so inaccessible that further intervention seemed too hazardous, but Klapp removed the spleen and thus obtained access to the tumor which was then easily excised, with the rapid recovery of the patient.

64. Treatment of Neuralgia with Injections of Alcohol.—Alexander extols the advantages and benefits of this treatment of neuralgia, urging it in all cases before resort to operative measures. His experience has been favorable, but he emphasizes the necessity of practice on the cadaver and anatomic studies before attempting to apply this technique. Even when it is impossible to remove the constitutional cause in injection of alcohol may yet relieve the patient of pain, as in case of a brain-tumor, while waiting for the exact diagnosis. In one such case the patient was relieved of pain for a year, until the intracranial cause was located. Great caution is required with this technique, he warns, for nerves with a motor element.

68. Aortic Insufficiency and Syphilis.—Citron relates experiences which show that the positive response to the serum test for syphilis reveals a syphilitic origin in a surprisingly large proportion of cases of pure aortic insufficiency. Even when there is congenital or other valvular or arterial trouble, specific treatment will relieve it of the burden of the superposed syphilitic lesions.

Deutsche medizinische Wochenschrift, Berlin

November 26, LXXVI, No 48, pp 2057-2104

- 71 *Treatment of Burns (Therapie der Verbrennungen) Pels-Leusden
- 72 Climate and Kidney Disease (Klima und Nierenkrankheiten) H. Strauss
- 73 Antipneumococcus Serum (Pneumococcenserum) G. Landmann
- 74 *Indirect Tuning Fork Auscultation Phonometry. (Indirekte Phonometrie, eine exakte Methode zur Bestimmung der Organgrößen mittels der Stimmgabel) E. Schlesinger
- 75 *Tricuspid Insufficiency and Its Symptoms. D. v. Taboia
- 76 *Hypotony or Relaxation of Muscles as Early Sign of Tabes (Messung der Hypotonie) J. v. Cesiky
- 77 Inflammatory Tumors in the Omentum (Entzündliche Geschwülste des Netzes) J. P. Habereis
- 78 Dangers from Anomalous Color Perception in Railway Employees (Untauglichkeit der sogenannten anomalen Tichromaten zum Eisenbahndienst) Schlodtmann
- 79 Chilling of Body Liable to Bring on Paralysis After Treatment for Hydrophobia (Zur Frage der während oder nach der antirabischen Behandlung auftretenden Paralyse) P. Pampoukis

December 3, No 49, pp 2105-2152

- 80 *Treatment of Inoperable Uterine Cancer (Behandlung des unoperablen Gebärmutterkrebses) H. Freund
- 81 *Technic for Medication by Inhalation (Einhalator) D. Finkel
- 82 Transformation of Albumin During Treatment of Obesity (Eiweißumsatz bei Fettleibigkeit) H. v. Selye
- 83 Disturbances in the Secretion of the Pancreas (Störungen der Sekretion des Pankreas im Anschluss an die klinische Beobachtung eines Falles von Suppuration pancreatica continua) A. Bickel
- 84 Filariasis zur Verth
- 85 *Belt to Shut Off Circulation from the Legs During Operations (Zur künstlichen Blutleere der unteren Körperhälfte nach Vomburg) G. A. Hansen
- 86 *Operative Treatment of Emphysema (Zur operativen Behandlung des Lungenemphysems) R. Stich
- 87 *Retroflexion of the Uterus (Zur Klinik der Retroflexio) A. Mayer
- 88 Silver Salts and Electrolysis in Gonorrheal Urethritis (Zur Therapie der akuten und chronischen Urethralblennorrhoe) G. T. Müller
- 89 Roentgen Apparatus with Pulsating Current. F. M. Groedel
- 90 *Syphilis in the Husband of Patient and Professional Secrecy (Darf der Arzt der vom Ehepartner mit Lues infizierten Frau die Natur ihres Leidens verschweigen?) N. Macri

71 Treatment of Burns.—Pels-Leusden thinks that it is extremely important to promote the elimination of the toxins generated in the skin by burned tissues, flushing out the body and counteracting their depressing influence on the heart. The pulse is liable to be frequent and small, vascular tone reduced, with hemoglobinemia, hemoglobinuria and subnormal temperature. Intravenous injections of a heart tonic with an abundant supply of fluids are indicated. The patients complain of thirst and take readily strong coffee and tea, brandy and champagne by the mouth. This should be supplemented by 100 cc. of physiologic salt solution by the rectum every 15 minutes, with intravenous saline infusion, especially when vomiting occurs as is liable with children soon after the burn; but in older persons it does not occur until a later

stage, just before delirium or stupor. These measures may save in the border-line cases in which from one-third to one-half the surface of the body is burned. Under all circumstances the pain should be relieved, possibly with morphin, which also soothes the patient tormented by a realization of the carelessness responsible for the burn, dread of death and anxiety for the fate of his family. Local measures should be applied cautiously, as the patients are in shock. The danger from this general intoxication from the burn is generally over by the fifth or sixth day, although death may occur after eight or ten days, without question of sepsis, but with diarrhea and hemorrhage from a duodenal ulcer. For local treatment for burns in the second and third degrees he prefers Tschmarke's technic, as this prevents secondary infection and thus the epithelium retains its vitality. He treats the burned surface as if preparing it for an aseptic operation. For a small area, anesthesia of the sensory nerve trunk may suffice, but extensive burns on the head, trunk and arms require general anesthesia, for which ether is preferable to chloroform, as it raises the blood pressure. The blisters are opened and the burned area for some distance around is scrubbed with soap and water for ten minutes, then rinsed with alcohol and 1/1,000 solution of bichlorid of mercury for two minutes and then covered with gauze compresses packed thick with absorbent cotton, with non-absorbent above. The exclusion of air generally arrests the pain, but if not, morphin is given. When the serous discharge wets the absorbent dressing through, the dressings are renewed down to the gauze compress, under the most scrupulous asepsis—the physician must disinfect himself each time as for a major operation. This must be repeated as often as the dressings become soaked, which does not occur after a few days. After ten or fourteen days the dressing is thrown off and the epidermis heals over with little tendency to contracture. He does not approve of iodoform gauze for burns or any antiseptic powder on account of the danger from absorption. The painfulness and general anesthesia required for this technic are far outbalanced by the rapid healing and avoidance of secondary infection, suppuration and fever. If the burn is not recent or general anesthesia is contraindicated, he applies Bardeleben's "bismuth bandage" or powders thick with bismuth after cleansing the burned area with salt solution. He unconditionally denounces all home remedies, but advises the continuous bath as indicated, or an early injection of thiosinamin and possibly a splint to ward off contraction.

74. Indirect Tuning Fork Auscultation.—Schlesinger uses a phonendoscope with a tuning fork, G natural, with 48 vibrations in the second. The fork is placed on the thorax and moved along toward the phonendoscope, and the resonance suddenly increases as the fork passes the margin of the heart or other organ being examined. The technic is more instructive when the organ is outlined with the "threshold" of audible capacity. He lauds the instructive findings with this indirect phonometry in examining the lungs, liver and spleen, and in detecting incipient foci.

75. Tricuspid Insufficiency and Its Symptoms.—Tabora declares that the only certain sign of tricuspid insufficiency is the systolic, positive liver and venous pulse, and eventually a systolic pulsation in the bulb.

76. Relaxation of Muscles as Early Sign of Tabes.—This communication from Jendrassik's clinic at Budapest calls attention to the diagnostic importance of the lack of normal tone in the muscles in the incipient phase of tabes. A method is described by which it is possible to measure the degree of this hypotony. As the patient stands, the distance from the floor to the greater trochanter and to the seventh cervical vertebra is measured. The patient is then asked to stoop forward as far as possible, with the knees stiff, and the distance from the floor to the seventh cervical vertebra is again measured as the patient bends the trunk forward. In health and in all other affections it is impossible to bend the trunk forward so that this vertebra is brought to or much below the level of the trochanter, but the diminished tonicity of the muscles in tabes allows stooping until this vertebra is 21 or more cm. below the level of the trochanter. In two

cases of abducent paralysis, the high degree of hypotony from Cancer of the Uterus. F. agnosis was confirmed by the

80. Operative Treatment of clair des cellules hépatiques.) Freund advocates abdominal removal, 785-792 of the growth, even when a radical question. In seven patients thus treated, satisfactory, abolishing the pains, the pulsive odor. This effect alone is enough, as the relief to the patient is so intense. The operation can be completed in forty minutes on an average, and the patients bear it remarkably well. The general health shows promptly the great benefit from the removal of the compression from the tumor and of the decaying masses. Spinal anesthesia is particularly useful in these cases. In the usual operative cases he does not attempt much preparatory measures for days or weeks beforehand. The cancer is curetted and canterized, with the patient slightly anesthetized, and the focus is then treated with astringent disinfecting applications, for which he has found bolus a tannin and salicylic acid useful, with repeated rinsing with per cent. solution of peroxid of hydrogen, but no tampons. In operating, the protection of the peritoneum is the main point. No resection as for a radical operation should be attempted. Unless the field of operation can be roofed over completely, with enough intact peritoneum in front of and behind the uterus to cover over the site, the removal of the cancer should be abandoned and nothing done beyond ligating the arteries. He has found that stavain spinal anesthesia is able in some cases to reduce the sensibility of the nerves so that the uncontrollable pain can be kept down afterward by morphin, which had previously been ineffectual. All his patients have been relieved of hemorrhages and discharges during the interval since the operation, up to three years in one case.

81. The Inhalator.—Fränkel gives an illustrated description of a simple vapor lamp to vaporize menthol as the patient sleeps. It burns for ten hours, keeping the fluid at 70 C., the proper temperature for vaporizing menthol. He has applied this method in 20 cases of superficial processes in the larynx, with excellent results. It also has a favorable influence on pulmonary lesions. Some of his patients were spared curetting by the use of this inhalator.

85. To Expel the Blood from the Legs by Momburg's Technic.—Axhausen adds another to the four cases on record in which operations were performed with the blood shut off from the legs by a rubber tube wound two or three times around the waist. Momburg's case here described is the most severe among those yet reported, the progress of a tuberculous process in the hip joint after exarticulation requiring resection of parts of the pelvis. The constricting belt was not applied until the patient was completely under the influence of the anesthetic, to insure the relaxation of the muscles and spare the patient the disagreeable sensation of the constriction. The femoral pulse is the index for the degree of constriction to be attained and maintained, and this is not materially influenced by the general anesthesia. A rubber drain tube, the width of a finger, was wound around three times, doubled, after raising the remaining leg, lowering the leg after the constriction. The reliable hemostasis gives the operator a feeling of security unobtainable by compression of the aorta by a finger or pad. There was no hemorrhage; only a few drops of blood oozed from the spongy part of the bones in the case reported. The constricting belt was in place for 45 minutes in all. No mishaps have been reported with this technic to date.

86. Operative Treatment of Emphysema of the Lung.—Stich adds another to the eight cases on record of chondrotomy according to Freund's method of treating emphysema of the lung, the result of pathologic changes in the thorax. These changes are revealed by primary changes in the cartilage, malformation of the costal cartilage and the position of the diaphragm. The first five ribs were resected on both sides, but the intervention was not especially difficult or dan-

58 Complement fixation of *Antigen* becomes evident at tuberculous *Antikörper* Cohn.
59 *Tuberculous Infection* *rus.*—Mayer has become convinced that *knäse Infektion* scarcely ever requires any treatment.
60 *Bovine Tubercle* *ipare.* He warns against local ex-
Their Important *fic women, and of nulliparæ in par-*
Tuberculosis. *ascribed to the retroflexion in many*
Sputum der *der chroni*
61 Importance. *results of constipation and the resulting*
of *On the su. fo-uterine ligaments. The sacral and abdom-*
pains are often a nervous symptom or local complication.
Among the latter a tendency to prolapse is the most important, and the disturbances generally vanish as this tendency is corrected. A simple round ring without regard to the displacement will sometimes suffice for this.

90. *Syphilis in the Consort of Patient.*—Macry urges the necessity for informing the wife, even against the will of the husband, of the syphilitic nature of the disturbances for which the physician has been consulted. He describes a case in which the first physician consulted instituted specific treatment, but without informing the patient of the nature of her trouble. The consequence was that the course of treatment was entirely inadequate, as the importance of the matter was not appreciated, and this disregard avenged itself later.

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November 15, IV, No. 46, pp. 1747-1784

- 91 *Acne.* P. G. Unna.
92 *Hemolytic Substances in Stomach Content in Diagnosis of Cancer.* (Vorkommen hamolytisch wirkender Substanzen im Mageninhalt und ihre Bedeutung für die Diagnose des J. Fey and G. Lefmann.
93 *Murmurs on Change of Position.* (Ver- Gerüusche bei Lageveränderung.) M. Herz
94 *Fever.*
95 *(Gibt es*
96 *Alcohol and Life Expectancy.* (Alkohol und Lebensdauer.) Stille.
97 *Treatment of Pancreas Diabetes.* F. Bruck.
98 *Intravenous Anesthetization.* (Intravenöse Narkose.) J. Nerking and W. Schürmann.
November 22, IV, No. 47, pp. 1785-1822
99 *Treatment of* General Practitioner. (Behandlung praktischer Säugling durch den
100 *Value of Serod* General Practice. (Was leistet zurzeit die Wassermannsche Reaktion für die Praxis?) F. Hoehne.
101 *Abdominal Vascular Crises in Tabes and Their Relation to Abdominal Aortitis.* (Zur Kenntnis der abdominalen Gefäßkrisen der Tabiker und ihrer Beziehung zur "Aortite abdominale.") J. Pal.
102 *Treatment of Old Fractures of Patella.* (Behandlung veralteter Kniegelenkbrüche.) L. Wrede.
103 *Therapeutic Application of Bromids on Experimental Basis.* (Therapeutische Anwendung der Bromsalze auf experimenteller Grundlage.) H. v. Wyss.
104 *Oxygenated Baths in Treatment of Neuroses.* (Sarsonen Ozeobäder bei der Behandlung von Neurosen.) G. Flatau.
105 *Mental Work a Growth Process.* (Geistige Arbeit und Wachstum.) O. Kolnstaam.

92. *Hemolytic Substance in Stomach Content in Diagnosis of Cancer.*—Fey and Lefmann have been studying the cause for the hemolytic action of the stomach content, and they report that it was pronounced in 14 out of 17 cases of various forms of gastritis, ulcer, nervous dyspepsia, etc., without a trace of malignant disease. The only feature common to all these positive cases was the constant presence of bile and trypsin. The method is not reliable, therefore, for the diagnosis of cancer.

97. *Treatment of Pancreas Diabetes.*—Bruck suggests that the antagonistic action of adrenalin and the pancreatic secretion might be utilized in the treatment of diabetes. In normal conditions the joint action of both substances prevents glycosuria, but if the pancreas secretion is lacking, the adrenalin gets the upper hand and glycosuria follows. The pancreas diabetes is therefore rather a negative pancreas and a positive suprarenal diabetes, as the over-production of adrenalin is responsible for the glycosuria. No glycosuria is observed in dogs after pancreatectomy if the suprarenal secretion is inhibited or if an active pancreas preparation is injected into the veins. He suggests that the same principle might be applied in pancreas diabetes which is the base for the treatment of exophthalmic goiter with the serum or milk of thyroidectomized animals. By excluding the adrenalin from the circulation, the milk or serum of animals thus

treated might prove an effectual means of supplying the diabetic with the missing neutralizing pancreatic secretion.

99. *Treatment of Clubfoot by General Practitioner.*—Oettingen remarks that during 2,000 years of experiences with clubfoot, the important part played by the knee in the correction has been almost entirely overlooked. The deformity develops with the knee flexed to the utmost and it should be flexed at a right angle in the immobilization. This has the great advantage that the sole can be held in proper position by traction on the knee. Treatment should commence the moment the child is first presented to the physician, even if it is only one day old. No anesthesia is required, merely a stout twilled cotton flannel bandage about 4 or 5 cm. wide. The bandage is passed first around the foot after the foot and thigh just above the knee have been smeared with a soft solution of mastic which glues the fuzzy stuff firm to the skin. The bandage starts at the little toe and is wound around the foot and then passes from the little toe over the knee and is then brought around across the front of the leg to the inner aspect of the foot, forming thus a figure-of-eight bandage. Before applying the bandage he manipulates the foot to bring it with maximal outward rotation of the leg into its normal position, watching the clock to see that he does not take less than five minutes to accomplish this. During the application of the bandage the assistant holds the thigh with one hand and the middle toe of the foot with the other, not releasing it until the bandage is completed. By this means the sole of the foot is held in correction supported by the thigh, the bandage holding the foot in pronation, outward rotation, abduction and dorsal flexion. It is impossible for the foot to slide back into its old position. This bandage leaves free the entire thigh, the under part of the knee, and the entire inward aspect of the leg and ankle, with a certain possibility for movement in all the joints. These are all immense advantages. The child is allowed to go home for two days, and can be bathed if the leg is held up out of the water. After two days the physician removes the bandage, washes the leg with warm water and soap and massages the leg for a few minutes. A bandage is then applied, which is left for five days, and is then removed for an interval of four days. In the same way three more bandages are applied, each for a week. By the end of the fourth week the foot is in normal position, ready for the after-treatment. So far, the mother is not allowed to massage or work on the foot, but now she is taught to massage three or four times a day, seizing the leg above the malleolus, the sole toward her as she sits or stands in front of the reclining child. With the middle finger of the other hand on the little toe of the foot, she strokes the sole away from her. This one single simple movement combines the four compensating elements for clubfoot, continuing the pronation, extension, abduction and outward rotation of both foot and leg. With older children a rubber strap is applied afterward, passing around the foot and knee like the other, with a buckle to keep it fast, tied with tape to keep it from slipping off the knee.

101. *Abdominal Crises in Tabes.*—Pal supplements his previous communication on this subject, stating that determination of the tension in the vascular system may throw light on many obscure abdominal attacks. Especially instructive is examination of the abdominal aorta and observation of its behavior in such attacks; this may allow differentiation and thus obviate unnecessary surgical intervention. Many tabetics, he declares, have been operated on at the first crisis. He has found that the symptoms which Potain and Teissier have reported as characteristic for abdominal aortitis are in certain cases the initial symptoms of the abdominal vascular crises of tabes. These vascular crises in the abdomen may occur without pain. The vascular phenomena are evidently an important element in the syndrome of the crises in tabes. Abdominal and gastric crises may alternate. The arterial tension may increase by 50 and even 150 per cent. in the abdominal crisis; not so high in the gastric.

102. *Treatment of Old Fracture of the Patella.*—Wrede bridged a gap of 8 cm. ten months after fracture of the right

patella in a man of 39. The quadriceps was completely atrophied. A long tongue-shaped muscle-tendon flap was cut in the quadriceps, its base at the upper margin of the patella. This flap was turned over and drawn down into a cavity made to fit it in the front of the lower half of the patella, and fastened there and also to the ligament, to the periosteum of the tibia and the connective tissue in the gap. The bed of the flap was sutured together and a plaster cast was applied. By the end of four months the patient could bend his knee and use it almost normally.

103. **Experimental Basis for the Use of Bromids.**—Wyss reports research on animals which shows that the bromids accumulating in the blood drive out the sodium chlorid until there are serious symptoms from lack of the latter. The animals develop ataxia progressing to fatal paresis from the lack of salt—the symptoms being similar to those we are accustomed to regard as signs of bromid poisoning. In reality, the animals are suffering from the lack of sodium chlorid. The most interesting feature of these experiments is that it was possible by injection of salt, almost up to the last moment, to save the animals. They recuperated entirely in less than twenty-four hours with no signs of their previous derangement. He suggests that the symptoms observed in these experiments indicate that chlorin is of special importance for the undisturbed functioning of the motor nerve cells. Continuous administration of the bromids causes a considerable retention of bromin ions in the blood. An abnormally high concentration of salts in the blood is prevented by increased elimination of sodium chlorid. The resulting deficiency of chlorin leads to serious consequences, but they can be arrested by restitution of the missing salt. He applies his findings to the clinic, asserting that reduction in the proportion of chlorin in the blood is the effective principle in the treatment of epilepsy. This is accomplished by systematic administration of the bromids combined with a reduction in the amount of salt in the food, but no total abstention from salt except in urgent cases, and then only in the beginning. Bromism is merely the sum of the disturbances in the cell metabolism resulting from long deficiency of chlorin; it is not a specific consequence of administration of the bromids. He discusses the hypnotic action of the bromids, which he thinks has been exaggerated. He adds that an affection of mental origin is not to be influenced by the bromids; they only exert an injurious influence on the total metabolism. He thus regards them as directly contraindicated in neurasthenia and hysteria.

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November 24, LV, No. 47, pp. 2417-2472

- 106 *New Principle for Maintaining Positive or Negative Pressure in the Lungs. (Zur Theorie und Praxis des Druckdifferenzverfahrens.) H. Brat and V. Schmieden.
- 107 Tuberculin Treatment in General Practice. John and Volhard.
- 108 *Diagnosis of Irregular Heart Action without Apparatus. (Diagnose der Herzmuskelrhythmusstörungen ohne Kurvenaufnahme.) H. E. Hering.
- 109 *Simplified Measures to Ensure Obstetric Asepsis. (Einschränkung der aseptischen Massnahmen in der Geburtshilfe.) B. Krönig.
- 110 Dysmenorrhea. J. Veit.
- 111 *Spinal Anesthesia and Scopolamin. (Lumbalanästhesie und Dämmerschlaf.) G. Klein.
- 112 No Anatomic Grounds for Decline in Breast Nursing. (Eine Abnahme der Stillfähigkeit unserer Frauen aus anatomischen Gründen existiert nicht.) Walcher.
- 113 *Determination of Typhoid Bacilli in Stomach Content Containing Bile. (Nachweis von Typhusbazillen im gallenhaltigen Mageninhalt.) A. Weber.
- 114 Operative Treatment of Suppurative Meningitis with Suppuration in Internal Ear. (Operative Behandlung der eitrigen Meningitis bei Labyrinthentzündungen.) Wittmaack.
- 115 Paralysis of Rats of Opposite Sexes. (Paralyse von Säugtieren verschiedener Geschlechter.) B. Morpurgo.
- 116 Technique for Secondary Suture of Tendons. (Zur Technik der sekundären Sehnennaht.) T. Kölliker.
- 117 *A New Aspect of the Pyrenol Question. (Die Pyrenolfrage—von einer ganz anderen Seite.) W. Straub.
- 118 Syphilitic Infection in Physicians. (Luetische Infektion bei Ärzten.) Heermann.

December 1, No. 48, pp. 2473-2520

- 119 Action of Solutions of Tryptic Ferment on Local Surgical Tuberculosis and Treatment of . . . Processes with Antiferment. (Einwirkung von t . . . auf örtliche chirurgische Tuberkulose . . . i fermentbehandlung eitriger Prozesse.) G. Jochmann and W. Baetzner.
- 120 *Practical Importance of Serodiagnosis of Syphilis. (Praktische Bedeutung der Serodiagnostik bei Lues.) F. Bering.

- 121 *Serodiagnosis of Syphilis in the Cadaver. (Die Wassermannsche Reaktion an der Leiche.) E. Fraenkel and H. Much.
- 122 *Physiology and Pathology of Digestion in the Stomach. (Magenverdauung.) O. Cohnhelm and G. L. Dreyfus.
- 123 Surgery of the Lungs. (Lungenchirurgie.) P. L. Friedrich. Commenced in No. 47.

106. **Maintenance of Intrapulmonary Positive Pressure.**—This communication from Bier's clinic describes an apparatus which is said to combine the advantages of the methods for positive and negative intrapulmonary pressure with a device for artificial respiration and insufflation of oxygen and an arrangement which permits anesthetization—all with the same apparatus, with or without a peroral tube. The apparatus is illustrated, and it is claimed that it is entitled to be regarded as an instrument of precision. One of its advantages is that, being used for so many different purposes, it is kept consequently in good order and many are familiar with its application, so that all is in readiness for emergencies. The principle on which the apparatus is based is that each respiration during intrapulmonary positive pressure is necessarily accompanied by more difficult expiration, and, consequently, that the overpressure in the lungs can be induced by merely rendering expiration more difficult. By preventing the free escape of air, the pressure within the lungs is kept high. Artificial respiration works better when the spontaneous respiration is arrested. Consequently the arrangement for maintaining artificial respiration is particularly useful when the spontaneous respiration is failing. The experiences with this apparatus have shown that it supplies a method by which the lungs can be kept inflated during the phase of expiration without at the same time preventing the retraction of the lung necessary to keep up the spontaneous ventilation. An adjustable spring valve regulates the amount of air expired. All methods for inducing positive and negative intrapulmonary pressure should be regarded more from the technical and surgical than from the physiologic standpoint, as none approximates physiologic conditions.

108. **Diagnosis of Irregular Heart Action Without Tracings.**—Hering reviews his five types of irregular heart action—1, irregularis respiratorius; 2, extrasystolicus; 3, irregularis perpetuus; 4, transmissorius; 5, alternans—and here gives the diagnostic physical differentiating points for each. He remarks that our knowledge of cardiac arrhythmia has made remarkable progress during the last ten years. The physician who has not made a study of these five types of irregular heart action deprives himself of an important aid for differentiation of the condition before him, as well as for treatment and prognosis. It is especially important to differentiate the first two of these types, which are comparatively harmless, from the third and fifth types. The prognosis for the third type—absolute irregularity—is grave, as no treatment is yet known which will cure it; the dissociation can be arrested only when it is of syphilitic nature. The fifth type, pulsus alternans, is the more severe the slower the heart action and the smaller the lesser systole. If the physician is unable to differentiate the second from the fourth of these types, he may give drugs which are directly contraindicated in the case in question. He shows how the differentiation of these various types, even without tracings, is not difficult, but the physician is liable not to be able to convince others without the objective records.

109. **Restriction of Measures to Insure Asepsis at Childbirth.**—Krönig declares that there is no necessity for such extreme attempts to realize asepsis in a normal obstetric case as others insist on. The results at his clinic bear out his statements that in a normal childbirth all that is necessary is to refrain from adding to the stock of germs already on hand. His three maxims are: No disinfection of the genital region. No necessity for disinfection of the hands of the person conducting the case. Full appreciation of the importance of the local and general predisposition for the development of infection. He presents arguments to show that the natural secretion of the vagina will take care of the local germs, and that scrubbing the external parts is liable to introduce more germs into the vagina. He trains his students to make their examination through the rectum, confi-

dent that information sufficient for all obstetric purposes can be thus obtained. He has never witnessed any injury from rectal examination, and it causes no pain to the parturient if she is asked to strain a little as the finger is introduced. The finger is protected from soil by rubber gloves or a rubber cot with flaring base. The rectal examination spares the patient and the obstetrician the necessity for disinfection. The only time when actual contact is necessary is during the maneuvers to protect the perineum. For this he wears mittens of stout, thick rubber cloth, recently boiled. In case an operation is required, these principles cease to apply; the woman is shaved and disinfected and the operator disinfects his hands as for a major operation anywhere. In 705 normal deliveries the morbidity has been 5.96 per cent. since he has been applying these principles. All these patients were allowed to get up the first day.

111. Spinal Anesthesia and Scopolamin-Morphin.—Klein relates his experiences with these technics, saying that spinal anesthesia has proved most useful in his hands, especially when combined with the scopolamin-morphin technic. He believes that the aftereffects of chloroform have been underestimated, and that it is responsible for many fatalities from the third to sixth day, which have been ascribed to shock or other cause. He regards spinal anesthesia as neither easy nor free from all danger, but says that it has a wide field in case of degeneration of the heart, in cachexia, anemia and affections of the respiratory organs. It has proved especially useful in some cases of coincident degeneration of the heart, anemia and nephritis. Its benefits are striking for myotomy. He does not approve of spinal anesthesia for minor or brief operations nor for vaginal operations as the sympathetic is not anesthetized. It is important to have the patient sit up for five or ten minutes to allow the anesthetic to lave the roots in the lumbar region in operations on the genitals or laparotomies. One great disadvantage of the lumbar technic is the occasional stiffening of the abdominal wall, but this can be remedied with a few whiffs of chloroform. He remarks that the dose of 0.0008 gm. of scopolamin is too high for some patients on account of its action on the heart, and he advises individualization even with this technic. After the first injection of scopolamin a trained nurse should watch over the patient continuously, and the second injection should be made only when the pulse is full and slow, but in every case he repeats the injection of 0.01 gm. morphin. It is important to refrain from speaking in the presence of the patient, even during the operation. Combination of this technic with spinal anesthesia and chloroform permits long major operations, such as abdominal hysterectomy for cancer, even in the severest cachexia and degeneration of the heart. He has applied this in 77 cases, and is convinced that the danger from the anesthesia is much reduced by this combination. The "twilight sleep" and spinal anesthesia form a combination whose results are evident in the behavior of the patients after the operation. They partly sit up in bed, converse and seem lively, in marked contrast to the patients after chloroform anesthesia. The aspect of the ward is entirely transformed.

113. Typhoid Bacilli in the Stomach Content of Bacillus Carriers.—Weber has found that it is possible to cultivate typhoid bacilli from the stomach content of a chronic bacillus carrier when the urine and stools are sterile; the only condition is that the stomach content contains admixture of bile. He has the patient drink 200 c.c. of oil, and pumps out the stomach content half an hour later. The layer of oil on top contains the bacilli in large amounts, and they are evident for two days. Besides two chronic bacillus carriers tested, he obtained positive results from a paratyphoid carrier.

117. This article will be discussed in the Pharmacology Department.

120. Serodiagnosis of Syphilis.—Bering reports application of the serum test in 896 cases, the results confirming anew its reliability. He prefers the simpler Bauer technic to the Wassermann method. It was described in detail in the *Deutsche med. Wochenschrift*, April 16, 1908, page 699.

121. Serodiagnosis of Syphilis in the Cadaver.—This communication from the great Hamburg public hospital fills a gap in our knowledge of the serodiagnosis of syphilis as the findings in the cadaver had not been extensively studied. The findings all confirmed the clinical verdict during life, although the investigator examining the serum was not acquainted with the case history at the time. The only discordant note was that scarlet fever cadavers gave also a positive response. This has little practical, but much theoretical interest.

122. Gastric Digestion.—Cohnheim's experimental and clinical experience has convinced him that in certain cases the disturbances ascribed to the stomach are in reality of intestinal origin. The stomach symptoms are the result of reflex action from an affection farther along in the digestive tract. He found it possible to induce gastric symptoms in dogs merely by acting on the small intestine.

Therapie der Gegenwart, Berlin

December, XLIX, No. 12, pp. 529-576

- 124 Occurrence of Non-Specific Serum Reactions. (Zustandekommen unspezifischer Serumreaktionen.) M. Jacoby.
- 125 Indications and Technic for Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. (Indikationen und die Technik des künstlichen Pneumothorax bei der Behandlung der Lungenschwindsucht.) C. Forlanini. Commenced in No. 11.
- 126 *Importance of Adsorption for Therapeutics. (Bedeutung der Adsorption für die Therapie.) L. Lichtwitz.
- 127 What Institutions Shall Care for Wage-Earners Suffering from Neuroses? (In welchen Anstalten sollen die an Neurosen Leidenden der weniger bemittelten Klassen behandelt werden?) S. Auerbach.
- 128 Sydenham's Treatment of Gout in Light of Recent Research. (Sydenhams Behandlung der Gicht im Lichte neuerer Untersuchungen.) F. von den Velde.
- 129 Treatment of Rachitis. J. Hoppe.

126. Importance of Adsorption in Therapeutics.—Lichtwitz reports research on the adsorbing power of bolus alba, charcoal, bismuth, talcum, etc., that is, their property to take up acids, ferments, toxins and the like. The practical results are that adsorbing substances may be given to aid in taking up the toxins in the digestive tract, especially in pernicious anemia and autointoxication of gastrointestinal origin, in which these adsorbing substances will help to carry off the toxins from the parts of the gastrointestinal canal inaccessible to lavage. The adsorbing action is of course greater the larger the adsorbing surface. It is also larger the greater the dilution of the toxins. Prompt evacuation of the adsorbing substance should be provided for.

Wiener klinische Wochenschrift

December 3, XXI, No. 49, pp. 1691-1776

- 130 Resection of Eyeball. (Resektion des Augapfels.) L. Müller.
- 131 *Allowing Patients to Get Up Soon After Surgical Operations. (Aufstehen nach chirurgischen Operationen.) K. Bidingger.
- 132 Protective Inoculation Against Hydrophobia. (Ueber das Lyssavirus "Fermi," über Schutzimpfung mit normaler Nervensubstanz, und über Wirkungen des rabidigen Serums.) R. Kraus und Fukuhara.
- 133 The Cutaneous Tuberculin Reaction in the New-born. (Kutanreaktion bei Neugeborenen.) O. Bondy.
- 134 *Anthrax and Its Prevention. (Die Milzbrandkrankungen und deren Verhütung.) H. Kokall.
- 135 *Treatment of Syphilis on Basis of Latest Research. (Die Syprochaete pallida und die klinische Forschung, nebst Betrachtungen über Syphilistherapie auf Grund der jüngsten Forschungsergebnisse.) E. Lang. Commenced in No. 48.

131. Allowing Patients to Get up Early After Operations.—Bidingger thinks it necessary to keep patients in bed after most abdominal operations, including hernias, till toward the end of the second week, as a rule. The exceptions are the patients with a tendency to pneumonia, especially the aged and infirm. The danger of pneumonia is the greater, the nearer the field of operation to the diaphragm. The most dangerous in this respect is gastrotomy for cancer of the esophagus. Such patients should always be got out of bed on the very day of the operation. When the expectoration is ample and the danger of pneumonia seems past, the patient can be allowed to stay in bed.

133. Cutaneous Tuberculin Reaction in the New-born.—Bondy applied the test in 350 cases to both mother and child, between the second and fourth days after delivery. A positive response was obtained in 71 per cent. of the mothers,

but in the infants the test always gave negative findings. Similar tests with diphtheria toxin in 50 cases resulted in a positive response in 30 per cent. of the mothers, but constant negative findings in the infants.

134. Prevention of Anthrax.—Kokall states that anthrax is becoming more and more prevalent at Brünn, notwithstanding elaborate disinfecting measures in the factories using imported hair and rags. He pleads for legislation compelling disinfection before importation. The disinfection might be done at the port of entry, or a certificate of thorough disinfection beforehand might be required before admitting the goods.

135. Syphilis.—Lang presents evidence to show that the treatment of syphilis should be more like the natural process of immunization. Large doses and brief courses of treatment do not give such favorable results as smaller doses and continuous treatment, supplemented by hygienic measures. He shows that the course of the syphilis corresponds to a formula including the syphilis virus, s ; the constitution, k , of the individual, and the external circumstances, $n + t$. The last element, $n + t$, is the influence of non-therapeutic and therapeutic factors. The formula thus shows the variability in the course of syphilis, as these inconstant elements vary so widely. He expresses it thus: $v = F(s, k [n + t])$. His method is to give one mild mercurial pill and increase by one

day until 6 are being taken, repeating this dose for two weeks, then reducing by 1 pill every two days to 3 pills, and continuing this dose for two or three months, then 2 pills for the same length of time, then 1 pill. This mild preventive course requires five or six months, and the patient should be kept under supervision throughout. The best results are obtained when the treatment is begun not less than ten or twelve days after infection. Some of his patients thus treated have contracted new infection, with typical local and general phenomena. Lang believes that the organism is able to cope with the infection unassisted, to a certain extent, and that the biology of the spirochete explains the superior advantages of this mild, continuous method of treatment.

Zentralblatt für Chirurgie, Leipzig

December 5, XXXV, No. 49, pp. 1457-1488

136 Changes in Blood in Consequence of Operations. (Aenderungen im Blutserum infolge von Operationen.) G. Bolognesi.

December 12, No. 50, pp. 1489-1520

137 *Absorbability an Essential Factor in the Catgut Question. (Abstufung der Resorbierbarkeit ein Wesentliches in der Catgutfrage.) F. Kuhn.

137. Absorbability of Catgut.—Kuhn has catgut treated with iodine before it is twisted, as described in these columns Aug. 10, 1907, page 529. Catgut thus treated is tough like leather and does not soften for weeks, so that it remains in the tissues comparatively unmodified for from 25 to 40 days. When it finally softens it dissolves as candy does in the mouth. Before it softens it remains passive, non-irritating, in the tissues, like wire. In selecting catgut, therefore, the absorbability should be regarded; the deeper the suture, the more important to have the catgut non-irritating and comparatively durable.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

BLACK-WATER FEVER. By Captain S. R. Christophers, M.B., I.M.S., and Dr. C. A. Bentley. (Officers on Special Duty). No. 35, of Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India, being the First Report of the Advisory Committee Appointed by the Government of India to Conduct an Inquiry Regarding Black-Water and Other Fevers Prevalent in the Duars. Boards. Pp. 239. Simla: Government of India Monotype Press, 1908.

SURGERY OF THE UPPER ABDOMEN. In Two Volumes. By John B. Deaver, M.D., LL.D., Surgeon-in-Chief to the German Hospital, Philadelphia, and Astley Paston Cooper Ashurst, M.D., Surgeon to the Out-Patient Department of the Episcopal Hospital, Philadelphia. Vol. I: Surgery of the Stomach and Duodenum. Cloth. Pp. 468, with illustrations. Price, \$5. Philadelphia: P. Blakiston's Son & Co., 1909.

PHRENOLOGY. By J. G. Spurzheim, M.D., of the Universities of Vienna and Paris, and Licentiate of the Royal College of Physicians of London, with Introduction by Cyrus Elder. Revised from Second American Edition (Boston, 1833). Cloth. Pp. 459. Price, \$3. Philadelphia: J. B. Lippincott Co., 1908.

INFLUENCE OF FOOD PRESERVATIVES AND ARTIFICIAL COLORS ON DIGESTION AND HEALTH. U. S. Department of Agriculture, Bureau of Chemistry, Bull. No. 84, Part V: Formaldehyde. By H. W. Wiley, M.D. Paper. Washington: Government Printing Office, 1908.

INFANTS' MILK DEPOTS AND THEIR RELATION TO INFANT MORTALITY. The New York Milk Committee of the New York Association for Improving the Condition of the Poor. Paper. Pp. 80. Price, \$0.50. New York: The Nation Press, 20 Versey St.

TRANSACTIONS OF THE SIXTEENTH ANNUAL MEETING OF THE HAWAIIAN TERRITORIAL MEDICAL SOCIETY, held in Honolulu, November, 1907. Paper. Pp. 88. Honolulu: Hawaiian Star Print, 1908.

APPLIED PHYSIOLOGY. By Robert Hutchinson, M.D., F.R.C.P., Physician to London Hospital. Cloth. Pp. 298. Price, \$2. New York: Longmans, Green & Co., 1908.

REPORT OF THE PRESIDENT OF THE BOARD OF HEALTH OF THE TERRITORY OF HAWAII FOR 1908. Paper. Pp. 150. Honolulu: Bulletin Publishing Co., 1908.

REPORT OF THE COMMISSIONER OF EDUCATION for the Year Ended June 30, 1907. Vol. II. Cloth. Washington: Government Printing Office, 1908.

JOHN MONTECALM, HERETIC. By Frederick A. Rupp, M.D. Cloth. Pp. 272, with illustrations. Price, \$1. Reading, Pa.: I. M. Beaver, 1908.

New Patents

Recent patents of interest to physicians:

- 904677. Electric-current bathing tub. F. Braun, Dresden, Germany.
- 904760. Surgical appliance. M. R. Cutting, Seattle, Wash.
- 904942. Urinary apparatus. V. De Incognito, Chicago, Ill.
- 904515. Invertible atomizer. T. A. De Vilbiss, Toledo, Ohio.
- 904779. Vaccinating needle. C. H. Higgins, Ottawa, Ont., Canada.
- 904615. Pasteurizing and sterilizing apparatus. C. E. Hinman, Council Bluffs, Iowa.
- 905083. Putting up antiseptic bandages. J. E. Lee, Conshohocken, Pa.
- 905087. Atomizer. H. H. Mallory, Chicago, Ill.
- 904362. Vibratory apparatus for ear treatment. E. Meyer, New York.
- 904986. Pasteurizing apparatus. A. A. Pindstoffe, Frederiksberg, Denmark.
- 905007. Surgeons' needle holder. A. F. Sether, Glendale, Oregon.
- 904739. Disinfectant distributor. J. O. Walker, Burlington, Iowa.
- 905032. Spray nozzle. A. S. Washburn, Germantown, N. Y.
- 904587. Invalids' bed. E. A. Wible, Evana, Cal.
- 905633. Nose piece for microscopes. E. Bausch, Rochester, N. Y.
- 905296. Spray-head for atomizers. T. A. De Vilbiss, Toledo, Ohio.
- 905301. Surgical device. J. H. English, Farmington, Mo.
- 905415. Manufacturing ammonia. F. W. Frerichs, St. Louis, Mo.
- 905705. Supporter. N. Johnson, Grove City, Minn.
- 905197. Attachment for syringes. C. L. Löffler, Sioux Falls, S. D.
- 905372. Cushioned joint for artificial limbs. J. F. Rowley, Chicago, Ill.
- 905602. Dehydrating moist chlorine. E. A. Sperry, Brooklyn, N. Y.
- 906188. Rendering carbohydrates soluble. A. Boldin, Seclin, France.
- 906207. Obtaining curative animal serum. R. H. Deutschmann, Hamburg, Germany.
- 906435. Inhaler. W. L. Knapp, Marletta, Ohio.
- 905890. Truss. F. A. Lane, Manchester, N. H.
- 905937. Disinfecting apparatus. M. Schnaier, New York.
- 905943. Preparation of casein. E. Soncini, Milan, Italy.
- 906081. Production of ozone. J. Steynis, New York.
- 906468. Production of ozone. J. Steynis, New York.
- 906084. Remedy for poison oak-rash. A. Terzich, Sonora, Cal.
- 906085. Dermatological instrument. A. L. Tolman, Orange, Mass.
- 906350. Truss. J. H. Windisch, Toledo, Ohio.
- 39683. Design, Medicine-dropper. O. F. Hall, Chicago, Ill.
- 906845. Wheeled crutch. J. W. Adair, Marion, Ohio.
- 906504. Capsule filler. P. H. Brown, Temple, Texas.
- 906772. Massaging implement. G. H. Coates, Worcester, Mass.
- 906694. Manufacturing a medicament. H. W. Davis, Weatherford, Texas.
- 906711. Syringe. H. M. Hill, Dallas, Texas, and C. O. Farrington, Chicago, Ill.
- 906918. Making neutral Oxychinnoln salts. L. Ostermann, Hamburg, Germany.
- 907090. Tonsilotome. R. H. Rice, Milwaukee, Wis.
- 906975. Apparatus for the sterilization of liquids. H. J. Wessels, Paris, France.
- 39688. Design, Medicine-dropper and stopper. O. F. Hall, Chicago, Ill.
- 907319. Fumigator. H. W. Curtis, Chicago, Ill.
- 907331. Surgical package. F. P. Gates, J. D. Cogswell and H. L. Grant, Manteo, N. C.
- 907146. Artificial limb. H. Hanger, Washington, D. C.
- 907377. Vibrator. H. Larsen, Springfield, Ohio.
- 907263. Truss. I. Meissl, Cleveland, Ohio.
- 907388. Bandage. R. K. Morris, Fresno, Cal.
- 907392. Aspirator. C. W. Nance, Sydney, New South Wales, Australia.
- 907639. Pasteurizing apparatus. J. T. H. Paul, Chicago, Ill.
- 907178. Nasal inhaler. A. Riggs, Cincinnati, Ohio.
- 907290. Nursing waist. C. Rouff, New Orleans, La.
- 907294. Dose indicator. J. H. Scott, Winston Salem, N. C.
- 907192. Ankle joint for artificial limbs. M. Spring, Oakland, Cal.
- 907536. Toe-stretcher. G. Sperzel, Philadelphia, Pa.
- 907428. Manufacture of camphol esters. A. Verley, Paris, and E. Urbain and A. Felge, Gentilly, France.
- 907664. Manufacturing dialkyl barbituric acid. O. Wolfes, Darmstadt, Germany.
- 907665. Manufacturing barbituric acid. O. Wolfes, Darmstadt, Germany.

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ANTIBACTERIAL OR ANTITOXIC IMMUNIZATION IN TUBERCULIN TREATMENT

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SARANAC LAKE, N. Y.

Owing to the limitations of our knowledge as to the effect of tuberculin on the tuberculous organism and to a most indefinite conception of its action, the best method to be followed in its therapeutic application still remains unsettled and to a great degree empirical. Leaving aside the minor debatable details of the treatment, two most important features in its application still remain unsettled; namely, the part played by moderate reactions and the place held in our conception of the treatment by tuberculin immunization. Are moderate reactions beneficial or always injurious? Is the highest limit of tolerance, attainable through steady progression in dosage, the object to be held in view in applying the treatment? These questions can not be definitely settled until we have a clearer conception of just what we are trying to accomplish by tuberculin injections than we have at present.

Two very widely differing conceptions of what tuberculin treatment accomplishes may be said to prevail at present. These may be summed up as the "vaccination" theory, which claims, through the stimulation of all the various defensive resources of the organism, to bring about as a result of the injections a greater or less degree of specific immunity to the action of the tubercle bacillus itself; and the "toxin immunization" theory, which holds that toxin tolerance or immunization to the chemical poison of the tubercle bacillus alone can result from the treatment; that progression in dosage in order to increase the toxin tolerance to the highest point attainable is essential, and the aim ever to be kept in view in applying the treatment; that the local disease is influenced but secondarily as by any measure which increases the general resistance of the patient, the healing of the tuberculous process taking place under treatment when this is possible, only by the natural physiologic defensive resources of the organism, and not by any specific immunity acquired through the medium of the injections.

THE VACCINATION THEORY

On the first conception, that of specific immunization to the bacillus, are based Koch's later attempts at producing an immunizing tuberculin, the work of Wright and his vaccine treatment according to the readings of the opsonic index, and that of many other investigators, who have held to the conception of a specific immunization to the bacillus, and tried to develop a method that would bring about a more or less

solid immunity to the disease, analogous to that produced by other vaccines in other infections.

Sahli, Denys, and others, on the other hand, hold solely to the conception of a purely antitoxic immunity, and in their proposed plan of injections they adopt a gradual progression in dosage and ever hold in view the aim of producing the highest degree of tuberculin tolerance or immunity attainable in each case.

Now it is evident that the method of administration—that is, the best dose to begin with—the necessity and ratio of its increase and the intervals between doses, as well as the length of the treatment, must depend greatly on our conception of just what tuberculin can and does accomplish. The place held in the treatment by general and focal reactions, for instance, still remains very undetermined, and it is evidently of the utmost importance that we should have some clear conception of the part they play, because we can decide whether they are beneficial or injurious. They hold no place in Dr. Wright's method, which aims only to gauge the specific immunization by the readings of the opsonic index, and which looks on fever reactions as evidences of a negative phase.

In the toxic immunization conception of the treatment, also, general and even focal reactions play no part, and are looked on merely as evidences of intolerance and of overdosing. They are to be avoided as much as possible, because they produce no specific immunization to the tubercle bacillus, and because, though when moderate, they are generally well tolerated and apparently harmless, if at all severe they are apt to exhaust and arrest the production of antitoxic substance, to influence the patient's general condition unfavorably, and to aggravate and activate the diseased focus by the violence of the inflammatory changes they bring about in it.

In the conception which aims at the production of specific immunity, general and focal reactions hold a more or less distinct place, the fever and the focal reaction being looked on as being a part of the mechanism of immunization by which a certain degree of specific resistance is brought about, as well as reparative changes in the local process.

Clinical experience has pretty definitely established by this time that marked reactions, whether general or focal, are not beneficial, and may be dangerous by their baneful effect on the general condition of the patient, and also by producing aggravation and extension of the local lesion. It is to a great extent owing to the very evident ill effects of treatment by strong reactions that tuberculin fell into such general and deserved disrepute. The value of mild general or focal reactions, however, still remains a debatable question, and their usefulness has many advocates. Any conclusion as to their beneficial influence must rest principally on extended clinical observations, and the study

of the records of cases in which they occur as compared with those in which, owing to the tolerance of the patient or the care with which the dosage is regulated, no reactions took place throughout the treatment.

Clinically it is already pretty well demonstrated, however, that, as good results may be obtained in cases where no general or appreciable focal reactions at all occur during the entire course of injections as in those in which they do. Animal experiments offer no proof as to the immunizing value of fever reactions produced with tuberculin, for in healthy treated animals no specific immunity to the tubercle bacillus results, whether the doses be large enough to produce fever or not. On the other hand, if there is little or no evidence forthcoming that the general fever reactions are in themselves beneficial, clinical observations tend to show that mild reactions are harmless and are often followed by a certain degree of general improvement, and there is some evidence, where it is possible to observe the tuberculous process, that moderate focal reactions produce improvement in the local process.

In lupus, in laryngeal tuberculosis and in eye tuberculosis in man, as well as in artificially produced eye tuberculosis in rabbits, we note a very apparent local improvement in the lesion following moderate focal reactions caused by the injections. Besides, slight focal reactions, unappreciable clinically, no doubt are taking place constantly as the result of the injections, and it is only when they are marked enough to cause symptoms that we realize that the minute doses of tuberculin injected have had any direct influence on the local lesion. Improvement in the lesion may depend on the influence of these mild reactions, but in considering the advisability of utilizing mild general and focal reactions as a feature of the treatment we must not forget that we have no means of controlling the severity of these reactions, and that violent reactions are not without danger.

THE TOXIN IMMUNIZATION THEORY

In the second conception, that of toxin immunization only, general reactions play no part, and progression in dosage is necessarily the essential feature. In aiming to establish tuberculin tolerance, we are brought face to face with the as yet little understood phenomena of hypersensitiveness and anaphylaxis, and our lack of exact knowledge as to the part played by hypersusceptibility in tuberculous infection is a serious stumbling block in our attempts to form a conception of what it is advisable to aim to accomplish by our treatment. We do not even know whether the usual sensitiveness to tuberculin in the infected organism, a sensitiveness which in most cases we can overcome to a marked degree by our injections, is one of the defensive resources of the organism and represents an effort on the part of Nature to protect it against an advancing infection, or whether it is the first step in an attempt at the production of a toxin immunization which is never realized.

The cure of the tuberculous process by the natural physiologic resources of the infected organism is certainly not dependent on a general toxin immunization, and, indeed, hypersusceptibility is an accompaniment of latent tuberculosis and may persist for some time after the tuberculous process has become extinguished. Experimentally, patient serum anaphylaxis, and clinically that progression in dosage is immunization instead of toxin

hypersusceptibility, the same moderate doses repeated at long intervals tending to bring about hypersusceptibility, and very minute but gradually increased doses at shorter intervals, tolerance. It is true, however, that tuberculin intolerance can also be produced by too frequent and too rapidly increased doses.

The toxin immunization conception is founded on clinical observations which show that tolerance of patients to tuberculin can be in most cases increased enormously by long-continued and careful progression in dosage, in some patients ten, in some a hundred, in some a hundred thousand, and in some a million times, and that gradually increased tolerance in most cases goes hand in hand with improvement in the patient's general condition. It is true that the chronic toxemia we are aiming to efface by stimulating the cells to a production of antibodies is only one of the evil effects produced by the infection, but by its baneful influence on the appetite, the vital functions and the nutrition it must tend to weaken the other defensive resources of the organism—leucocytosis, bacteriolysis and phagocytosis and fibrosis—which are coping locally with the infection, and it can not be denied that to relieve the patient of his systemic poisoning must have a favorable influence on the course and ultimate issue of his disease. This is shown clinically by the improvement in the patient's general condition which this method of treatment produces, and also by the many instances where the improvement seems to be maintained for long periods after the treatment is discontinued and so long as the toxin immunity persists, and where a return of toxin susceptibility is found to be accompanied by evidences of activity in the local lesion.

It can not be said, however, that the amount of good a patient derives from tuberculin treatment is always in direct ratio to the size of the dose of toxin he can be brought to tolerate. This evidently depends principally on the natural physiologic resources of each infected organism. If these are markedly deficient no amount of artificially induced toxin tolerance can cure the disease. Tuberculin tolerance, we must remember, does not mean immunity to tuberculosis either clinically or experimentally, and we should not expect too much from its production. Above all, we should beware of exhausting by too rapid an increase in dosage the power of the organism to respond to the increasing stimulation of the toxin and thus produce in an aggravated form the very toxemia we are aiming to efface.

NEITHER CONCEPTION SATISFACTORY

As we review the claims of these two conceptions as guides to a method of treatment, we are obliged to own that neither is satisfactory, owing to our as yet imperfect knowledge of the mechanism of tuberculous infection, and especially of acquired and artificial immunity. The production of a general antibacterial immunity by tuberculin is not supported by experimental evidence, and in holding this conception we have nothing to guide us clinically in our attempts to induce it, for the fluctuations of the opsonic index as a guide to dosage in the treatment of pulmonary tuberculosis have been found unreliable and impracticable. On the other hand, I can not accept a purely antitoxic immunization as explaining all the good effects of tuberculin treatment, for in cases of purely localized disease, as in the skin or the eye, or even where the infection is confined to the lymph nodes and where the general health is unimpaired and no evidence of chronic toxemia ex-

ists, it is impossible to deny the favorable influence which the injections exert on these localized lesions. This may be due, however, to the many imperceptible focal reactions brought about by the injections and not to any general specific immunity.

If we must have a working theory and must decide between the two, I prefer for the present to hold to the conception of an immunity that is principally at least antitoxic as produced by the treatment, and to consider tuberculin habituation its essential feature and the best guide to dosage. This conception does not lead us to expect too much; it is more in keeping with what we observe clinically as a result of treatment, and explains its very evident limitations. It is also in accord with experimental evidence which shows that vaccinations with living cultures alone produce any real immunity to subsequent tuberculous infection, and that no specific antibacterial immunity worthy of the name can be brought about in animals by dead germs or chemical products derived from cultures.

MAIN FEATURES OF TREATMENT

If we accept the toxin immunization conception as the essential feature and guide to the treatment, instead of measuring the degree of a questionable antibacterial immunity by the opsonic index, or attempting to produce it more or less empirically by a series of moderate reactions, the severity of which we can not in any way control, the main features in our treatment would be:

1. To raise the degree of tolerance to tuberculin to the highest point attainable in each case by an almost imperceptible and long-continued progression in dosage.
2. To avoid general and focal reactions as much as possible and consider them merely as evidences of intolerance.
3. To follow no arbitrary rule as to rate of increase or the maximum dose to be reached, but to be guided merely by the degree of toxin tolerance of each patient as shown by the symptoms and general condition, whether the highest individual maximum dose attainable be only a small fraction of a milligram or a cubic centimeter or more.

HYPEREMIC TREATMENT IN GYNECOLOGY AND OBSTETRICS *

ARTHUR STEIN, M.D.

NEW YORK

The marked operative tendency which existed among gynecologists toward the end of the last century was naturally followed by a more conservative era. Signs were not wanting that the pendulum had reached the limit of its swing toward the operative side and that its return movement had begun. At one of the New York medical societies Emmet ridiculed the common occurrence of presenting large jars with uterine adnexa at gynecologic meetings. Ramy,¹ in a warning against operating without indication, ironically called attention to the fact that at some gynecologic meetings the surgeons who reported the most radical operations on the female genital organs received the greatest recognition. After these and similar warnings the question naturally arose whether it was not possible to attain normal conditions or nearly

such in the female pelvis with non-operative methods. It is not to be denied that the non-operative treatment often requires weeks to accomplish its end and that it, therefore, taxes the patience both of the physician and patient. The result will in most instances amply justify the trouble and time bestowed on the treatment, as normal organs, of normal function, will often be preserved.

The trend toward conservative gynecology came at a time when in general surgery efforts were being made to avoid operations as much as possible in acute and chronic inflammatory conditions. In this work Bier was the pioneer. Though not the first to introduce special apparatus for the production of artificial hyperemia (Ambrose Paré seems to have been the first, and Jules Guyot² in 1835 described a hot-air apparatus), he placed hyperemic treatment, which had been used empirically for centuries, on a scientific basis and gave new impulse to this form of treatment. Bier demonstrated its great practical value and usefulness. After the surgeons grasped the indications for, and technic of, producing artificial hyperemia, and had gained some experience with the method in minor surgical conditions, the gynecologist was not slow to adopt it in the treatment of the diseases of women.

It would lead too far to consider here the many theories advanced in the explanation of the effects of artificial hyperemia and to go into details regarding hyperemia in general; these can be found in Bier's³ book and in Willy Meyer and Schmieden's⁴ recent publication. Suffice it to say that there are two kinds of artificial hyperemia: active or arterial hyperemia produced by means of hot air, and passive or venous, brought about by cupping glasses or the elastic bandage. What artificial hyperemia particularly attains is diminution of pain. While it is not possible to suppress every infection before pus is formed, there is no doubt that, by means of artificial hyperemia, suppuration can be avoided in a large percentage of cases. In cases in which pus has formed it must, of course, be evacuated, but the hyperemic treatment enables us to accomplish with small incisions what formerly could be accomplished only with large disfiguring ones. By increasing the supply of blood the course of the pathologic process is hastened and absorption is favored.

INDICATIONS FOR DRY HOT-AIR HYPEREMIA

Turning to the discussion of the treatment of gynecologic and obstetrical conditions with artificial hyperemia, I shall consider first active hyperemia produced by dry hot air. This has been extensively used by the gynecologist, but has not received the attention of the general practitioner which it deserves. The latter frequently has the opportunity to treat gynecologic conditions in which the hot-air treatment is applicable, and he could use this just as well as the specialist can, for I believe that nothing is easier in private practice than to apply this form of treatment in diseases of the female generative organs.

As regards its indications and contraindications, it must be emphasized that fever, when it is caused by the pelvic trouble, is a positive contraindication, as are pregnancy and hemorrhage when not of ovarian origin: thus it is contraindicated during menstruation and in hemor-

*Read at a meeting of the Harlem Medical Society, New York, Oct. 7, 1908.

1. From Pincus: Belastungslagerung, p. 5, Wiesbaden, 1905.

2. Guyot, Jules: Arch. gén. de méd., series 2, 1835, viii.

3. Bier, August: Die Hyperämie als Heilmittel, Leipzig, 1906.

4. Bier's Hyperemic Treatment, Philadelphia, 1908, W. B. Saunders & Co.

rhagic endometritis. Advanced pulmonary and cardiac disorders are also contraindications. The large field in which it is applicable includes chronic inflamed adnexa, pelvic exudates, chronic parametritis, and perimetritis, contracted painful scars, and fixed malposition of the uterus and its adnexa when the result of inflammatory processes.

It frequently happens that patients who have had no fever get a sudden rise of temperature immediately after the first hot-air treatment. This occurrence indicates the presence of an old encapsulation of pus somewhere in the inflammatory process, one that had not been detected by the finger of the examiner. In such cases it is best to stop the treatment and to try to bring about an absorption of the pus by other means. When the latter has taken place the hot-air therapy can be continued. Of course, I would not advise against it if there is only a slight elevation of temperature. Whether or not the treatment is to be adopted must be left to the judgment of the attending physician in each individual case. The fact that the presence of a small collection of pus causes the body to react so readily to hot air has led to the use of the latter as a diagnostic measure. I have seen many cases in which hot-air treatment was given in order to reach a definite conclusion as to whether pus was present or not. We must remember that the old saying, "ubi pus ibi evacua," has not become obsolete since the introduction of Bier's hyperemia. Pus when present must always be evacuated by surgical means.

APPARATUS FOR HOT-AIR TREATMENT

The hot-air treatment may be applied in two different ways, by means of hot-air chambers and by the hot-air vaginal douche. I shall confine myself, however, to the former, as the hot-air chambers are just as convenient to use and far more effectual than the douche. According to the simplicity of construction, the hot-air boxes or chambers may, for convenience, be divided into three groups. The first group includes the now obsolete Roth apparatus, which consists of two parts, an asbestos cylinder and a separate hot-air chamber which surrounds the asbestos; its application is cumbersome and complicated and is, therefore, not to be recommended. The second and third groups include apparatus of simple construction, box-like chambers, quadrangular or cylindrical in shape, which encompass the pelvis of the patient.

For all practical purposes the easiest way to give hot-air treatment in private is to use the ordinary semicircular cradle. This is placed over the patient's pelvis and made air-tight by putting blankets over it. The hot air is carried into the chamber through a small funnel-shaped sheet-iron chimney (the well-known Quincke chimney); an alcohol lamp or a Bunsen burner placed on a stand underneath the funnel supplies the heat. E. Kehrer recommends the use of electric light bulbs on the inner side of the cradle to supply the necessary heat. He has obtained good results in this way, and it must be admitted that this method has the advantage of being clean. (Colored bulbs should be used, as they prevent the chemically effectual rays from reaching the patient.) Every apparatus should be supplied with a well-constructed thermometer to avoid burns.

RESULTS OF HOT-AIR TREATMENT

The chief physiologic function of dry hot air is the production of an active hyperemia, an increased supply of arterial blood. Bier attributes the curative qualities of this mode of treatment to the fact that it causes more

blood to flow through the diseased tissues in a given time, rather than to the increased supply of oxygen brought to the part. Klapp's experiments have demonstrated that not only the skin but the abdominal contents as well become hyperemic. In this way the tissues are better nourished, their regenerative functions are stimulated to greater activity, and an increased local metabolism is established. Perspiration is increased and through its evaporation the skin is cooled; this explains the fact that temperatures from 210 to 230 F. can be tolerated. It must be borne in mind that advanced pulmonary or cardiac disease are contraindications for this treatment and that therefore the lungs and heart should always be carefully examined before applying it. The first treatment should not be prolonged beyond twenty-five or thirty minutes; later, if the patient's condition makes it seem wise, the treatment may be prolonged to sixty minutes. A treatment begins only when the temperature has reached from 175 to 212 F. A cold cloth on the forehead adds to the patient's comfort. After a treatment the patient is dried, given dry linen and permitted to sleep. The evening temperature should be taken on the day of the treatment. Pain which was excruciating before the treatment was begun is often allayed before it is ended. The patient looks forward to the treatment or even asks to have it repeated.

Besides this change in the subjective symptoms, the objective ones also undergo important changes. Polano,⁵ in his first publication concerning this method of treatment, states that chronic pelvic exudates are especially amenable to it. He cites the history of a case in which after twenty sittings a large parametric exudate entirely disappeared. Everyone who has used hot-air therapy extensively has been able to report similar results. In two of my own patients with hard chronic exudates filling the entire pelvis I found practically a *restitutio ad integrum* after five to six weeks' treatment. Frequently the hot-air applications do not cause a disappearance of the exudate, but instead cause it to break down, thus making it ripe for incision; after the incision the condition is usually cured. Firm scars in the parametrium and in the vagina, old bands and adhesions which hold the uterus in an abnormal position are made amenable to massage by dry heat. The reason why chronic inflammatory adnexa tumors frequently show objective improvement after the treatment is because they are usually accompanied by a parametric process or by edema, and these are readily amenable to hot-air therapy.

TREATMENT BY WEIGHTING

In connection with the hot-air therapy in the above-mentioned conditions I wish to mention another form of treatment to which altogether too little attention has been given. I mean the combination of the hot-air therapy with *Belastung* or *Belastungslagerung* (treatment by weighting). In looking over the literature I find that this combination is mentioned only by Stoeckel,⁶ Kehrer⁷ and Frankl.⁸ The latter says: "Chronic inflammatory adnexa tumors which are unaccompanied by fever are often greatly improved by a combination of dry heat, massage and *Belastung*

5. Eine neue Methode der Behandlung chronischer Beckenexudate, *Centralbl. f. Gynäk.*, 1901, No. 30.

6. Diskussionsbemerkungen, *Sitzungsber. d. Gesellsch. f. Geburtsh. u. Gynäk. zu Berlin*, July 14, 1903.

7. Beitrag zur Behandlung chronischer Beckenexudate, *Centralbl. f. Gynäk.*, 1901, No. 57.

8. Die physikalischen Heilmethoden in der Gynäkologie, 1906, Berlin, Urban and Schwarzenberg.

(weights). The enlarged adnexa which previous to the hot-air treatment were too sensitive to be amenable to massage and weighting becomes painless, so that a combination of all three forms of treatment can be carried out."

Belastung is nothing new. Diokles, Strato, Celsus, Charcot, Bozeman and Chrobak all employed it, but not until 1897, when W. A. Freund improved the method sufficiently, did it receive more general recognition. He placed a glass tube speculum in the vagina and filled it with shot. Later Schauta and his pupil Halban modified the method in that they filled a colpeurynter with mercury.

Pincus⁹ still further improved the method by employing *Belastungslagerung*, that is to say, he brought pressure against the exudate like Schauta, but in addition placed a bag containing clay, shot or sand and weighing from one to two kilo on the patient's abdomen.

The foot of the patient's bed is raised 30 cm., and the weights are kept in place from six to eight hours. By combining the elevation of the foot end of the bed with the application of the external and internal weights, called by Pincus *Belastungslagerung*, two things are accomplished. The pelvic viscera, especially the uterus and adnexa, are carried up toward the pelvic inlet so that the inflammatory mass in the pelvis is made more accessible to the weights. The inflammatory mass brought between the vaginal and abdominal weight is flattened out like a sponge. This pressure, aided by the Trendelenburg position, brings about an anemia of the inflammatory mass as long as the treatment lasts. Immediately after the weights are removed and the patient assumes the horizontal position a marked reaction sets in, the anemic tissue becomes markedly hyperemic. To the latter the pain-relieving action of the treatment must be attributed.

The indications for the employment of weight therapy are the same as for hot-air therapy. When combining the hot-air and weight therapy I obtained the best results by alternating the two on successive days. In private I prefer filling the colpeurynter with mercury instead of with shot, as the patient can readily let the mercury run out at a specified time without the aid of the physician.

It is not within the scope of this paper to go into details regarding the various modifications of this method, such as colpeurynter massage, Pincus' mercury-air colpeurynter, etc.; these can be found in Pincus' monograph. I mention them for the sake of completeness, as, in a broad sense, they, too, come under the head of hyperemic treatment.

A judicious combination of the hot-air therapy and the weight therapy is especially advantageous, as the former often affects only the subjective symptoms favorably, while the latter affects the objective ones. Both methods should be employed, not only by the specialist, but also by the general practitioner, as they require only patience and no complicated apparatus. That the hot-air treatment can also be carried out in dispensary practice is amply proved by Buerger's¹⁰ and Eltze's¹¹ publications.

SUCTION HYPEREMIA FOR UTERINE INFLAMMATORY CONDITIONS

Of late the suction cup has also been introduced into gynecologic therapeutics. In 1905 Rudolph¹² of Heilbronn published the first article regarding it, and was soon followed by Bauer,¹³ Eversmann,¹⁴ Kroemer,¹⁵ Le-with¹⁶ and others. They recommended it in inflammatory conditions of the uterus and cervix—that is, in erosions, endometritis and metritis, also for parametritis, amenorrhea and dysmenorrhea. Kroemer even employed it to prevent an infectious process from spreading beyond the uterus after the latter was infected.

The suction glasses have the shape of the well-known old-fashioned glass tube speculum. One extremity is slightly funnel-shaped and receives the cervix. The other end is closed and near it a small tube is attached which connects with the suction pump. The suction cup is made of plain glass so that the degree of hyperemia and the amount of uterine secretion brought out by the suction can be easily watched. The general rules which apply for the use of the suction cup elsewhere apply here: after five minutes' suction, from two to three minutes' rest, etc., in all about one-half hour a day.

I have had considerable experience with the suction treatment in gynecology and believe that the benefits to be derived from it are no better than those attained with other forms of treatment. It appears to me to be expecting too much to cure a metritis or endometritis by treating only the cervix. The whole organ should be treated, and as this can not be done with the suction glasses, other modes of treatment will accomplish as much or more in these conditions. If it seems desirable to scarify an inflamed cervix the use of the cup is of value in increasing the bleeding. Recently favorable results have been reported with the suction glasses, obtained by somewhat modifying the technic. A high degree of suction is employed so that the cervix is aspirated for some distance into the vaginal cup; each suction is kept up a shorter time than usual and the intervals between the suctions are also made shorter, the duration of each sitting being the same as before—one-half hour. In this way a kind of massage (suction massage) is combined with the hyperemia. Those who use it recommend it in chronic parametritis and in cases of old scars and periuterine adhesions, with the idea of stretching and softening the latter. As far as my own experiences go, I believe that bimanual massage, possibly combined with weight therapy, is more effectual than suction massage.

Attempts have also been made to relieve dysmenorrhea by applying large suction cups to the breasts instead of to the cervix. Theoretically and clinically a close relation exists between the uterus and the breasts. An increase in the physiologic function of the former influences the latter, as the well-known facts during pregnancy and the puerperium go to show. From these premises Polano¹⁷ concluded that disturbances of menstruation could be influenced by artificial stimulation of the breasts—that is, by the suction treatment. He re-

9. Pincus, Ludwig: *Belastungslagerung*. Grundzüge einer nicht-operativen Behandlung chronisch entzündlicher Frauenkrankheiten und ihrer Folgezustände, 1905, Wiesbaden.

10. Buerger, O.: Zur Heissluftbehandlung gyn. Erkrankungen. Wiener klinische Wochenschrift, No. 28, 1903.

11. Eltze, H.: Poliklinische Erfahrungen über Heissluftbehandlung. Alte und neue Gynäkologie, Festschrift f. von Winckel, München, 1907.

12. Rudolph, I.: Die Bier'sche Stauung in der Gynäkologischen Praxis. Centralbl. f. Gynäk., 1905, No. 39.

13. Die Bier'sche Stauung in der gynäkologischen Praxis. Wien. klin. Wochenschr., 1905, No. 47.

14. Eversmann, I.: Die Bier'sche Stauung in der Gynäkologie. Centralbl. f. Gynäk., 1905, No. 48.

15. Das Bier'sche Stauungsverfahren in der Gynäkologie, Centralbl. f. Gynäk., 1906, No. 4.

16. Ueber Stauungsbehandlung bei gynäkologischen Affektionen. Monatsschr. f. Geburtsh. u. Gynäk., 1906, xxiv, 551.

17. Zur Behandlung der Dysmenorrhoe, Centralbl. f. Gynäk., 1908, No. 9.

ports some favorable results and states that pain is always diminished. The clinical observations with this form of treatment in dysmenorrhea are only of recent date, so that it is impossible at present to estimate the benefit to be expected from it.

SUCTION HYPEREMIA TO INCREASE FLOW OF MILK

With reference to the field of obstetrics, suction cups are applied to the breast with the idea of increasing the production of milk in nursing mothers, or to start anew the flow of milk in a breast which had stopped secreting (lactagoge Stauungshyperämie). Jaschke¹⁸ asserts that it is especially successful in women in whom there was no secretion of milk at all during previous puerperal states. He cites the history of a para who had no milk during her two previous puerperiums. After her third labor her breasts were cupped and as a result she had plenty of milk for her baby. In another patient labor was prematurely induced on account of a flat rachitic pelvis, during the thirty-fifth week of pregnancy. The mother at the time had no colostrum in the breasts; after three days of cupping there was sufficient milk for the child. Another case was one of an old primipara with no colostrum at full term. Her breasts were cupped on the second day postpartum; on the third day the infant was able to obtain forty grams of milk at a single nursing. Jaschke's experience leads him to conclude that "the secretion of milk is so increased by cupping that a causal relationship between artificial hyperemia and increased secretion can not be denied" and that "breast cupping is applicable in cases in which there is no flow of milk, as well as in those in which the breasts do not secrete early enough or in insufficient quantity." He also recommends cupping as a cure for retracted nipples, which in private practice often are the cause of the mother not nursing her baby.

Polano^{5, 17} reports similar good results, one of his cases being especially interesting: In a patient in whom the milk became insufficient seven times during six months, two treatments per day for two days re-established the normal flow each time.

Such evidence demands consideration, and cupping can not be too strongly recommended for these conditions, especially as no harm can be done. The hyperemic treatment in these conditions bids fair to increase the number of nursing women and to do away with artificial feeding to some extent. The explanation of the increased secretion brought about by cupping is to be found in the fact that by moderate suction more arterial blood is brought to each secreting cell, while more forcible suction brings about a venous hyperemia. After the latter has been produced and the suction is stopped a marked arterial hyperemia again sets in. In this way more blood is brought to the gland in a given time than under normal conditions and the breast is better nourished than before. The treatment of puerperal mastitis by suction hyperemia is described in detail in Meyer and Schmieden's book. In my experience the treatment should be begun as soon as the first signs of a mastitis set in. When the treatment is started promptly, pain and inflammatory signs are allayed at once. When pus has once formed the time has come for incision: "ubi pus ibi evacua." The incisions required in conjunction with hyperemic treatment, however, need only be very small. This method has the great advantage of preserving a functioning breast without any disfigurement,

while the old method of making large radial incisions left disfiguring scars and often destroyed so much parenchyma that the breast was useless for nursing purposes during her future puerperal states.

I stated above that treatment should be begun when the first symptoms of a mastitis set in. This statement is contrary to the findings of Zangemeister,¹⁹ who believes that treatment should not be started too early, as it favors suppuration. I am not convinced that this is so; larger statistics only will determine which method gives the better result.

Another indication for the suction treatment in obstetrics is found in the induction of abortion, when the cups are applied to the cervix. This is hardly to be recommended, as the other methods of inducing abortion are more certain and quicker.

In connection with artificial hyperemia, it is all-important to treat the patient's general condition. It is the aim of the hyperemic treatment to increase the flow of blood through the diseased tissue in order that the latter may better resist the deleterious invasion of bacteria. This will be the more easily accomplished if the blood is in good condition, and, therefore, hygienic, dietetic and tonic treatment should not be lost sight of. From what has been said it can not be denied that the hot-air treatment, alone or combined with *Belastungs-lagerung* is of great value in the treatment of chronic inflammatory conditions in the female pelvis and that the cupping of breasts is a valuable aid in treating puerperal mastitis and breasts which secrete poorly or not at all. It is, therefore, not going too far when I venture to say that the general practitioner should familiarize himself with these forms of treatment, and that hospitals should do justice to the progress of medical science in establishing so-called "conservative wards" in which the above discussed treatment can be given a thorough trial. If this be impossible, special rooms should be established in gynecologic dispensaries for this purpose. Thus many women would be cured who now are but slightly improved or mutilated by operative treatment.

As a further incentive to the use of conservative methods, let me remind you of the famous Czerny's words: "All operations are accompanied by some danger and are justified only when all other methods of treatment have been exhausted."

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PURULENT PLEURITIS: PATHOLOGY AND TREATMENT

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The pleural sac is kept in its normal condition of simple moisture by a definite lymph circulation; the stomata both on the visceral and parietal layers, in health, keep this fluid down to certain limits. The thorax being a closed sac and the pressure within being negative, it follows that the aspirating qualities are usually most efficient. Samuel West¹ speaks of this as "the lymphatic pump," and shows that with any collection of fluid within the pleura there must be some mechanical obstruction to the operation of this pump. It is probable there is always more or less absorption of fluid through

18. Stauungshyperämie als ein die Milchsecretion förderndes Mittel, Medizinische Klinik, Feb. 23, 1908.

19. Die Behandlung der puerperalen Mastitis mit Saugapparaten, Deutsche med. Wochenschrift, 1908, No. 6.

1. Lancet, London, March 25, 1905.

these minute mouths, and that the attempt of Nature in an inflammatory reaction to block them completely, is ineffectual.

PATHOLOGY

In the last few years the bacteriologic examination of exudates in the thorax, systematically carried out, has shown to a certain degree the prognosis, and also the methods of treatment. A considerable number of authorities—Frankel (among the earliest), Weichselbaum, Renvers, Netter, Pruden, and lately Withington²—have investigated the relation of various specific bacteria to empyema. It seems evident that serous exudates which become purulent really contain pus organisms from the first, irrespective of paracentesis. At the present time, from a bacteriologic standpoint, the conclusion of most observers appears to be that in purulent pleuritis the pneumococcus is extremely frequent, occurring as a pure infection; that it is the common cause of metapneumonic effusions, and is usually the secondary infection in tuberculosis, and that the prognosis of pneumococcus empyema is relatively favorable. Streptococcus occurs more often than pneumococcus, and the effects of the former are more serious than those of the latter. Tubercle bacilli have been shown to be a less frequent cause of pus formation in the pleural cavity than of serofibrinous exudates. The finding of other organisms does not exclude the possibility of tubercle bacilli, nor does the discovery of tubercle bacilli in empyema exclude the possibility of other organisms, especially the pneumococcus, which may have died out.

Infection due to staphylococcus is rather infrequent. Mixed infection, that is, pneumococcus with streptococcus, pneumococcus with tubercle bacilli, or staphylococcus with tubercle bacilli, is about 10 to 20 per cent.

Babcock³ believes, and rightly, that from the standpoint of pathology the three varieties, dry pleurisy, serofibrinous pleurisy and empyema, are simply several stages of the same kind and form of inflammatory reaction. From a bacteriologic standpoint, the differences are more marked and evident. The differentiation of the primary from the secondary pleurisy is always more or less difficult; that is, the discovery whether in a given disease the same infecting agency is causing both. It is most probable that whatever the pleurisy, the immediate agent is bacterial.

TREATMENT

From the time of Hippocrates the chest has been opened by the knife, actual cautery, or simple thoracotomy, for accumulations of fluid within the pleural sac. The operation fell into disrepute, however, for a long period, and was advocated only in extreme cases. It was not until the middle of the nineteenth century that the procedure was looked on with favor. Bowditch, in America, deserves most credit for impressing on his professional confrères its value. Aspiration in both purulent and serous pleuritis was at first a common practice, but of late paracentesis has been restricted to serous exudates, while thoracotomy is performed in empyema.

It is not my intention to describe either of these measures for the relief of this condition. They are both not only well known, but the last at least is a purely surgical procedure. Thoracotomy has attained the position of being almost classical, and generally is performed indis-

criminately whenever pus is diagnosed as occupying the pleural sac.

Unquestionably, with our present clinical knowledge and in view of the results secured by many operators, a free opening and drainage of the chest cavity might appear to be the most rational method of treatment. In this pus-containing cavity, however, we do not find the usual conditions. It is surrounded by walls capable of expanding and contracting as the fluid is removed. The method of cure is, therefore, closure of the pleural sac, secured by evacuation of its contents and expansion of the lung or falling in of the chest wall. If the empyema is of long standing, adhesions are surely formed binding down the lung, so that, the pressure being removed, expansion is nearly, if not quite impossible, and the thorax must of necessity retract in its attempt to close the cavity.

Expansion of the atelectatic lung is very much to be desired. Lately Ranshof⁴ has described a method of releasing this organ, and in 1893 De Lorme, a French surgeon, showed by an operative procedure that "the functional value of lung tissue long buried in thickened pleura and fibrous adhesions could be restored."

I desire now to speak of two methods more fully, which approach rather closely the field of the medical man; the first briefly, the second in detail.

Last year Dr. Joseph Bryant⁵ advised the treatment of empyema by continuous suction. As a matter of fact this seems to be a modification of Bulau's siphon drainage. The pus is evacuated by means of a large canula, a small rubber tube being passed into the chest cavity through this. To the rubber tubing is attached a collapsible rubber bag. The vigor of the suction can be regulated by the size and expanding power of the bag. The rubber tubing is attached to the chest wall by adhesive straps and worn continuously. Of course the apparatus is emptied and cleaned as the occasion arises. Not only is the exudate evacuated in this manner, but the influence of the negative pressure, supplemented by the normal respiratory movement, is of great benefit in expanding the former atelectatic lung. Bryant treated many cases in this manner, but failed to state the number or to give the mortality. The average duration of illness of those who recovered appears to have been about four to eleven weeks. The practical utility of the plan is one that he is not "disposed to emphasize in a great degree as a substitute for rib resection."

Dr. John Murphy of Chicago has lately employed a method of treatment in empyema, which is most interesting and instructive, and may prove of great value. It consists first in the aspiration of the pus, followed by the injection of one to five ounces of a 2 per cent. solution of formalin in glycerin through the same canula without removing the instrument. The treatment is repeated in ten days to two weeks if necessary.

Although up to the present time Dr. Murphy has not published a description of this procedure, or in fact formally presented the results of his work, it is known that he is most enthusiastic over what has been accomplished, even going so far as to intimate that it will, in the majority of cases, supersede rib resection.

Theoretically, the method appears to be based on the fact that the injected solution will not only wholly or partially sterilize the pus cavity, but will also stimulate

2. Withington, C. F.: *Tr. Assn. Am. Phys.*, vol. xvii.
3. *Diseases of the Lung*.

4. *Ann. Surg.*, xliii.

5. *Surgery Gynec. and Obst.*, iii.

the more or less formed inflammatory products (adhesions, flocculi, thickened pleura, etc.) and lead to their gradual absorption. In this treatment there does also seem to be a certain amount of breaking down and softening of these exudates, perhaps in part due to the hygroscopic action of the glycerin. In any event, the irritative properties of the solution would bring an enormous number of leucocytes to the area, and also a dilution of the contents of the cavity by serum.

All these factors might seem to be of considerable help in the disappearance of the contents of the sac, for by the action of the lymphatic pump (undoubtedly there are many stomata which are not shut off in pleuritis), in conjunction with osmosis, absorption in the majority of cases does clinically occur.

REPORT OF CASES

Through the kindness of Drs. Gaub, Elterich and Edwards, I am able to report seven cases treated by this method, the patients ranging in age from 3 months to 30 years. Of these seven patients, three died, a mortality of 42.8 per cent., but two were practically hopeless when treated. Of the four who recovered, all except a woman 30 years old were children. The infections appeared to be metapneumonic. The average number of injections were two, the interval between ten days to two weeks.

The infecting agent in two cases was staphylococcus, in one streptococcus, in another mixed infection, pneumococcus and streptococcus. The length of time from the first injection to discharge was four to six weeks. In every case after injecting the formalin there was a reaction, slight rise in temperature, increased cough, or moderate amount of thoracic pain. All these symptoms quickly subsided.

Of the patients who died, one, a boy, aged 9, was suffering from a most pronounced kidney lesion, with general anasarca. While the patient was in the hospital, pus was discovered in the left pleural sac; it was a mixed infection of streptococci and pneumococci. Murphy's method was employed, and 3½ ounces of the solution injected. In eleven days another injection of four ounces was made. The patient died about three weeks after the treatment.

The second fatal case was that of a child 3 years old. The empyema developed during an attack of bronchopneumonia. On February 17 two ounces of formalin-glycerin solution was injected. On February 27 the chest was aspirated; no injection was given. On March 10 the chest was again aspirated, two ounces of creamy pus removed, and one ounce of formalin-glycerin injected. The patient died the same afternoon. In this child there was an undoubted cavity, located in the right lung, upper lobe, posteriorly. Bacteriologic examination showed streptococci.

The last fatal case was a most instructive one. An infant 2 years of age was admitted to the Pittsburg Hospital for Children, with a history of measles three months before. Examination of lungs showed an empyema, for, on aspiration of the right side of the chest, three ounces of pus were removed. One ounce of Murphy's formalin-glycerin solution was injected. Immediately there was a marked reaction, extreme dyspnea, rapid and irregular pulse and cyanosis. In spite of the most vigorous measures, the child died about an hour after the injection. There was no bacteriologic examination.

GENERAL CONSIDERATIONS

Relative to the above case, Capps and Lewis⁶ have shown (1907) that all operative procedures inside the thoracic cavity, on an inflamed pleura, may be followed by disturbances in the circulation. The patient may become dyspneic, cyanotic, the pulse thready, and death occur in a few moments or hours.

It is most interesting to note that in seventeen cases of experimental pleurisy in dogs the injection of three or four drops of formalin into the inflamed pleural cavity brought about a decided fall in blood pressure in 47 per cent., followed by death in a number. The reflex did not occur in some cases, and Capps and Lewis believe this may have been due to a certain protection of the pleura by a thick fibrinous mass.

The ideal method in the treatment of purulent pleuritis would be that one in which the mortality was the lowest, the recovery quickest, and with the least operative interference.

At the present time, whenever pus is diagnosed in the pleural sac, in the great majority of cases a rib resection is performed. Unquestionably this is absolutely necessary in many instances, but in others it is certainly uncalled for, since it prolongs the convalescence and produces more or less deformity, and occasionally a stubborn and protracted sinus. Empyema, before the days of radical operative interference, was cured frequently by simple paracentesis. It seems possible that in the near future more discrimination will be shown by surgeons in dealing with this condition. From the work done by bacteriologists, we know that the pneumococcus infections within the pleural cavity are comparatively benign; therefore it is possible that a simple thoracentesis, or at most a small incision drained for a few days, will be found to meet the requirements of this condition. Streptococcus or mixed infections containing this organism are known to be virulent, and a thoracotomy with drainage is unquestionably indicated in cases of such infections. In tuberculous empyema, uncomplicated by pyogenic cocci, repeated aspirations at long intervals will probably be found to give the best results.⁷

Murphy's method, when the indications and contraindications are more fully understood and Dr. Murphy has reported his clinical results, will perhaps be of great value. It may be found of greatest benefit in empyemas of long standing, for, as Capps and Lewis have shown, formalin injected into a pleural cavity in which the inflamed membranes are not fully protected seems to be a procedure of some danger.

Our knowledge of all the conditions existing in the pleura and lung during an empyema is incomplete, but certainly a careful and systematic bacteriologic study of each case will go far toward indicating a line of treatment.

Craig Street and Fifth Avenue.

6. Capps and Lewis: *Tr. Assn. Am. Phys.*, xxii.

7. Brawn: *Deutsch. med. Wchnschr.*, xxxii, No. 14.

Cooperation in the War on Tuberculosis.—Tuberculosis is driving labor bureaus and health boards into cooperation. The cooperation cannot be accomplished unless we have uniformity in the nomenclature of diseases and occupations. We must also agree on standard units of investigation for housing and occupation.—Prof. John R. Commons, University of Wisconsin.

SOME FACTORS IN THE HISTORY OF HEMOGLOBINURIC FEVER

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It is probably a unique circumstance in the history of pathology that a complex of symptoms so striking as hemoglobinuric fever should have such an obscure history. As this obscurity is intimately associated with the etiology and symptomatology of the condition an investigation of some of the factors in its history is not without interest. After a short statement of the history of hemoglobinuric fever I shall briefly consider how far it has been influenced by, first, its confusion with bilious remittent fever and yellow fever; second, the introduction of cinchona bark and its alkaloids into the treatment of malaria, and, third, the advent of Europeans into regions where the fever is endemic.

HISTORY OF HEMOGLOBINURIC FEVER

In the years from 1850 to 1853 blackwater fever was described by Lebeau, Daullé and Leroy de Méricourt, physicians of the French navy, who observed it in Madagascar and, especially, on the island of Nossi Bé, off the northwest coast of the former island. They named the condition "icteric pernicious fever." In 1861 cases observed in the Antilles, Guiana and Senegal were described by Dutrouleau as "hematuric bilious fever." In the early sixties Barthélemy-Benoit also described "hematuric bilious fever," and in 1874 appeared the monograph of Bérenger-Féraud on "melanuric bilious fever." This writer states that the disease has existed in Goree since 1845, and in St. Louis, in Senegal, according to the hospital record of that city, at least since 1820, shortly after the settling of Europeans there. The first twenty-three settlers at Gabon, in 1843, were attacked with blackwater fever and almost all of them died. A great increase in frequency has occurred since 1850.

Crosse¹ believes his own case, in 1888, to be the first on record in the Niger Territories, though he states that the disease was said by old coasters to have existed in the Niger delta since 1882. F. Plehn² does not believe the disease to be of recent introduction into West Africa, but attributes its comparatively late recognition to two factors: first, the fact that the susceptible population who formerly lived as traders on anchored hulks began to take up their abode on the shore, and, second, the fact that the disease was formerly confounded with yellow fever. It has been known in Senegambia³ since 1855, and in the Dutch East Indies since the Atjeh War,⁴

Calmette saw a number of cases in Gabon in 1874-78.

1886-87, and Fluit⁵ in San Juan del Sur, has seen numerous cases since 1850. The condition was not described in India until 1855, and Sambon⁶ regards this as conclusive proof of its recent introduction, as "it would be absurd to think that it could have escaped the attention of such men as Annesley, Chevers, Carter, Martin, Fayrer, Morehead and MacLean had they met with it."

Dr. Elliotson,⁷ in 1832, mentioned a case of ague accompanied by a discharge of bloody urine during the cold stage.

Todd,⁸ in 1849, asserted that "a state of general cachexia, such as often occurs in scurvy, may bring on hematuria, or such as results from an aguish state brought on by the malaria of marshy districts."

In the United States hemoglobinuric fever was first described by Dr. J. C. Cummings,⁹ of Monroe, Louisiana, in 1859. He reported six cases and refers to the occurrence of cases during previous seasons. Faget¹⁰ treated the disease as early as 1859, and states that cases with hematuria and hematemesis had frequently been seen in New Orleans and mistaken for yellow fever. Inasmuch as Faget considered hematemesis a common symptom of hemoglobinuric fever, it is possible that he himself confounded the two diseases in some instances. In 1867, Dr. T. C. Osborn,¹¹ of Greensboro, Alabama, observed ten cases, five of which ended fatally, some with anuria and uremia. All the patients had been repeatedly attacked with malaria. A few months later his son, Dr. J. D. Osborn,¹² read before the Greensboro Medical Society a paper from which it is evident that the disease was becoming more prevalent and that the country people were regarding it as yellow fever. Dr. H. C. Ghent,¹² of Port Sullivan, Texas, in 1886, reported hemoglobinuric fever endemic in parts of Texas. In March, 1869, Dr. R. F. Michel, of Montgomery, Alabama, read a paper before the Medical Association of the state of Alabama in which he spoke of the disease as "a malignant malarial fever, following repeated attacks of intermittent, characterized by intense nausea and vomiting, very rapid and complete jaundiced condition of the surface as well as most of the internal organs of the body, an impacted gall bladder, and hemorrhages from the kidneys. These phenomena presented themselves in an almost uninterrupted link, attended by remissions and exacerbations. It is a fever peculiar to the United States." He recorded the morbid anatomy in one of his fatal cases.

In Arkansas hemoglobinuric fever was first recorded by Dr. E. R. Duvall, of Fort Smith, in a paper read before the state society in 1871. He believed that the case he recorded was the first to occur in the state. This paper is said to be a model of accurate clinical observation. In 1880, Dr. G. B. Malone, in Monroe county, Arkansas, reported 155 cases met in his practice.

The affection was first reported in Georgia by Dr. W. A. Greene, of Americus, in 1872, and in North Carolina, by Dr. Norcom, of Edenton, in 1874. Norcom asserts that the disease did not, as some stated, make its first appearance a few years ago, but that it had long been recognized.

Dr. McDaniel,⁷ of Camden, Alabama, described hemoglobinuric fever in 1874, and says: "In calling up my own reminiscences, I am sure that I have occasionally, ever since my boyhood, seen isolated cases of what was considered intense bilious fever, with the surfaces and under tissue stained deeply yellow and with the urine deep red. They were nearly all fatal and were called in older phrase 'bilious congestive,' and in more recent 'pernicious bilious.' I have also, but more rarely, known

1. Crosse: Blackwater Fever, London, 1899.

2. Plehn: Die Kamerun Küste, Berlin, 1898.

3. Mense: Arch. f. Schiffs- u. Tropen-Hyg., III, 4.

4. Kohlbrugge: Arch. f. Schiffs- u. Tropen-Hyg., III, 2.

5. Cited by Mense: Arch. f. Schiffs- u. Tropen-Hyg., III, 4.

6. Sambon: Practitioner, March, 1901.

7. Cited by Sternberg: Malaria and Malarial Diseases, New York, 1884.

8. Cummings: New Orleans Med. News and Hosp. Gaz., vi, 811.

9. Faget: New Orleans Med. Jour., October, 1868.

10. Osborn: New Orleans Med. Jour., 1868, p. 644.

11. Osborn: New Orleans Med. Jour., xlii, 61.

12. Ghent: Richmond and Louisville Med. Jour., v, 271.

groups of similar cases associated; say three or four cases occurring on the same premises or in the same family about the same time. All such cases, in addition to the deep so-called bilious color and the red urine, had jactitation, suspirious breathing, inordinate thirst and vomiting of variously shaded and tinted so-called bilious matters. By diligently inquiring I have ascertained that very many old physicians, some of whom have now retired from practice, are satisfied that they have observed similar cases, sometimes singly and sometimes in groups."

The late lamented Dr. A. G. Mabry, in a report of a case of intermitting icteroid hematuric fever, made to this association in 1870, says: "It is a mistake to suppose that this is a new form of disease. More than twenty-five years ago I treated, in the vicinity of Selma, cases of intermitting fever, presenting, in a marked degree, all the symptoms characteristic of these cases at the present day."

The acrimonious dispute of the earlier writers on the subject of what constituted the coloring matter of the urine is paralleled only by that occurring later concerning quinin in the treatment. While Daullé and Bérenger-Féraud stoutly maintained that the dark color was due to the presence of bile in the urine, Dutrouleau, Pellarin, Barthélemy-Benoit, Antoniadès and Corre ascribed it to blood. It is remarkable that none of the first American writers attributed the color of the urine to bile but considered it due to blood. Corre (1881) and Karamitsas (1882) proved that the process was a hemoglobinuria instead of a hematuria.

The credit of first directing attention to the etiologic relation between quinin and hemoglobinuric fever is generally but erroneously assigned to Tomaselli, who published his first observations in 1874. At a meeting of the Greek Medical Society, Nov. 6, 1805, Veretas¹³ reported that the majority of physicians practicing in the marshy regions of Greece had noticed hematuria following the administration of quinin. He adds: "Among these observers my father has a place, having attentively observed this action of the medicament, not only in several other persons, but in himself also, unfortunately, as he was for a long time tormented with intermittent fever during his long residence at Vonitsa." Konsola¹⁴ is said to have observed similar cases in 1858. During this year, also, Antoniadès published an article "On Hemorrhages and Particularly Hematuria in Intermittent Fever," in which he opposes the theory that quinin is a cause. Other Greek physicians whose observations were published before those of Tomaselli are Papavassilou, Rizopoulos and Karamitsas.¹⁵

CONFUSION WITH BILIOUS REMITTENT FEVER AND YELLOW FEVER

The close relationship between malaria and blackwater fever renders it easy to understand why the latter might have been confounded with bilious remittent fever. Moreover, the early pyretologists almost completely ignored the condition of the urine in fevers. Hence in a clinical scene, preceded by or opened with ordinary malarial paroxysms and characterized by dark urine, between the color of which and the bilious urine of bilious remittent fever there are all degrees, it is slight wonder that the two conditions were confounded. This probably occurred chiefly in India and to a less extent in certain portions of Africa and America. One is

struck, on reading accounts of the Indian fevers, with the description of the intense jaundice of the skin and the sclerae, out of all proportion to this symptom in the bilious remittent fevers of the present day. In fact, some of these descriptions, for instance Johnson's¹⁴ of his first case in India, lack only the mention of the characteristic urine, about which the author is altogether silent, to make a fairly complete case of hemoglobinuric fever. Cleghorn¹⁵ graphically depicts what he regards as a form of tertian fever, accompanied by hemorrhages, dark urine, deep jaundice and other symptoms of hemoglobinuric fever. Since it is reasonably certain that there was no yellow fever in Minorca during the period of Cleghorn's sojourn in the island, namely, from 1744 to 1749, it may reasonably be inferred that he saw cases of blackwater fever.

The fact that the early history of hemoglobinuric fever opens with disputes as to whether the coloring matter of the urine was due to blood or to bile is evidence of the confusion by some observers between hemoglobinuric fever and bilious remittent fever, since formerly *bile* and *malaria* were practically synonymous.

It has been mentioned that the first reliable records of the existence of hemoglobinuric fever were, according to Bérenger-Féraud, those of the hospital of St. Louis, in Senegal, where it is shown to have existed as early as 1820. It is a singular coincidence that this city afforded, in 1778, the first epidemic of yellow fever occurring in Africa.¹⁶ Later Plehn² gave as one of his reasons for believing that hemoglobinuric fever was not a new disease in West Africa, the fact that it had formerly been mistaken for yellow fever. Besides Senegal, two of the other regions where hemoglobinuric fever was first seen, the West Indies and Guiana, were yellow fever foci. In the United States we have the early statement of Dr. J. D. Osborn that the condition was then regarded as yellow fever.

The similarity of the symptoms and the relative immunity of the black race to both diseases render the mistake somewhat excusable. As recently as 1897 Below¹⁷ maintained the identity of yellow fever and blackwater fever.

INTRODUCTION OF CINCHONA BARK

Cinchona bark was introduced into Europe in 1640 by the Countess del Chinchon, wife of the viceroy of Peru, in whose honor it has received its name. The efficacy of the bark in malaria was first known to the Indians in the region of Loxa, in the southern portion of Ecuador. The Corregidor of Loxa, hearing of the severe illness of the countess with tertian fever, at Lima, in 1638, advised her physician, de Vega, to give the bark a trial. The remedy effected a prompt cure, which in those days was regarded as nothing short of miraculous. When the countess returned to Spain she took a supply of the bark with her. Here it seems at first to have been employed chiefly by the Jesuits, who introduced it into Rome in 1649. It was then known as countess' powder or Jesuits' powder. Its use was antagonized by other religious denominations and by the medical profession. The bark was imported into England in 1671 by Sir Robert Talbot, an English quack, who kept the remedy a secret and sold it for one hun-

14. Johnson: The Influence of Tropical Climates on European Constitutions, New York, 1826.

15. Cleghorn: Diseases of Minorca, London, 1762.

16. Hirsch: Handbook of Geographical and Historical Pathology, 1, London, 1883.

17. Below: Berl. klin. Wchnschr., Nov. 15, 1897.

13. Cited by Cardamatis: La fièvre bilieuse hémoglobinaire, Paris, 1902.

dred louis d'or per pound. Louis XIV, who was attacked with a severe and rebellious intermittent fever in the year 1679 and was cured by Talbot by means of a concentrated vinous tincture of the bark, purchased and made public the secret remedy, for which he paid 48,000 pounds and a life annuity of 2,000 pounds.

In India the remedy was employed by Bogue¹⁸ as early as 1657. In these times, in Spanish-America, where the bark was indigenous, extraordinary methods were employed to prevent the nature of the drug becoming recognized. But during the eighteenth century cinchona bark was almost universally known. Lind is said to have employed, in Lower Bengal, during 1765, over 140 pounds of the bark. In 1714 Ramazzini¹⁹ wrote that should a fever patient die it was considered a crime not to have employed cinchona. In fact, so widespread was the use of large doses of bark that Calmenero (1647), Casati (1661), Daval (1684), Ramazzini (1714), and others wrote vehemently against the abuse of the drug.

Pelletier and Caventou, in 1820, succeeded in isolating quinin from the bark.

The institution of cinchona plantations in Java, in 1854, and in Ceylon, in 1859, caused a drop in the price of quinin, which had formerly sold for its actual weight in gold, to one-twentieth the original price.

Marchiafava and Bignami²⁰ seek to explain the seeming late appearance of hemoglobinuric fever by the fact that the use of quinin became prevalent at the time when the disease was first described. It is probable that this factor has caused an increase in certain localities, but a comparison of the history of the disease with that of the drug shows no very intimate chronologic relations. Further, blackwater fever is on the decrease in some regions where the use of quinin is becoming more general. This is reported to be the case in German East Africa by Meixner,²¹ in Cameroon by Ziemann,²¹ in Togo by A. Plehn,²² and by Kohlbrugge⁴ in the Malay Archipelago. The large number of cases occurring without the previous use of quinin should also be considered.

ADVENT OF EUROPEANS INTO REGIONS WHERE THE FEVER IS ENDEMIC

A consideration of the importance, in the history of hemoglobinuric fever, of the immigration of Europeans into regions where the condition is endemic, involves the history of the tropics and subtropics. This factor is manifestly an essential in countries where the natives are nearly immune, as in parts of Africa. Historic events which were probably potent in the development of blackwater fever were the discovery of America, the Portuguese discoveries and settlements on the coast of Africa, the African slave trade and the later efforts to abolish the same, the advent to Africa of missionaries and explorers, especially in the early part of the nineteenth century, and the operations of the East India Company.

The immigration of Europeans was influential in the history of hemoglobinuric fever in several ways: by the increase of susceptible population, by the importation of quinin, and by the advent of physicians competent to recognize and to describe the disease.

THE PHILIPPINE MEDICAL SCHOOL

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Statistics presented at the second annual meeting of the Philippine Islands Medical Association, held in February, 1905, showed that there were in the islands only an average of one physician to 21,209 of the population of the archipelago, or one to each 430 square miles of territory; this, in spite of the fact that the medical school of the University of Santo Tomas had been earnestly engaged in educating young men in this professional field for years, having taken up the work inaugurated in former times by the missionary priests, who themselves, in their individual parishes, were compelled to assume the dual function of priest and physician. These statistics gave abundant evidence, not only of the need of more physicians in the Philippines, but also of the fact that an additional school of medicine could be established. As a result of the movement inaugurated at this meeting of the Philippine Islands Medical Association, the government, following the report of a committee, passed a law in December, 1905, establishing the Philippine Medical School. However, the time was not yet ripe for beginning the course of instruction; it was necessary carefully to scan the field, to decide on plans of instruction and to determine what chairs should be filled at the beginning. It was consequently not until Nov. 6, 1906, that the faculty was finally organized and the first members appointed. The school began its work on June 10, 1907, with fifty-four students.

We have, in the years since American occupation, as a result of the systematic studies carried on by many earnest investigators in the field of tropical medicine, obtained a much more exact insight into the causes underlying many of the diseases which are supposed particularly to pertain to the tropics. The health authorities, by energetic work, have been in a position steadily to improve their methods of prophylaxis, and, above all, they have learned what they have to contend with and what the attitude of the people toward infections and epidemics is. This, however, does not go far enough.

Cholera, bubonic plague, or smallpox are what might be termed the spectacular infections; their occurrence in a community is at once recognized and the people themselves can more or less readily diagnose the diseases. Measures looking to their limitation, therefore, while they may not have the cooperation of the masses, at least have the backing of the officials and of the more intelligent public. The people, while they may strongly doubt the usefulness of the means employed to prevent infection, such as confining themselves to the drinking of boiled water and the eating of cooked food during times when cholera prevails, or being vaccinated against smallpox during the periods of that disease, nevertheless do something along the lines indicated, for the reason that the evident mortality from these diseases is so great as to make a deep impression.

It is different with the infections which are not spectacular, such as tuberculosis or malaria. Very little, if anything, is done to prevent them, for they do not attract much attention; yet tuberculosis, and, I am inclined to believe, malaria, are among the most serious forms of infection we have to contend with in the Philippines. A recent comparative study of one hundred autopsies at the Philippine Medical School showed

18. Cited by Rogers: *Fever in the Tropics*, London, 1908.

19. Ramazzini: *Sur l'abus du quinquina*, 1714, Paris reprint, 1905.

20. Marchiafava and Bignami: *Malaria*, New York, 1900.

21. *Medizin. Berichte über die deutschen Schutzgebiete*, 1903-04.

22. Plehn: *Arch. f. Schiff- und Tropen Hyg.*, vii, 12.

tuberculosis to be the cause of death in thirty-five of the cases. No statistics are available in regard to malaria, as no careful studies have as yet been made in the provinces, but malarial infections certainly are present in great numbers. Not only are these a cause of mortality, but they also, even where the outcome is not fatal, act as one of the factors limiting the energy and output of the individual.

We also encounter other classes of infections which may not appear as causes of death, but which, nevertheless, have their effect, and which are widely disseminated. A recent statistical study in Bilibid prison showed, among 4,106 prisoners examined, 3,447 to be infested with one or more forms of intestinal parasites. While their presence may not cause immediate or apparent manifestation of disease, nevertheless, if the results in Bilibid are any criterion of the condition in the country at large—and they certainly are such a criterion—it would follow that about 5,000,000 persons in the Philippines are infested with intestinal worms. It is scarcely to be doubted that a people in this condition would be unable to reach their best physical and mental development, and, perhaps, while we blame the masses themselves for lack of energy and distaste for work, we should really blame the infectious agents and the unhygienic conditions under which the people live.

The health authorities, with their small force of men who must be engaged in other directions, can scarcely make an impression on the conditions leading to the prevalence of these parasitic infections or of the not easily recognizable causes of disease. The older physicians in the islands, having been brought up in a school which did not have for its fundament a careful and complete laboratory training, scarcely believe that any large measure of sickness or death is caused by these conditions and can not, at their best, influence more than a small part of the community. The people themselves, fundamentally, know nothing about the dangers to which they are exposed, or if they did, would not know what remedy to take.

Herein lies the reason for the Philippine Medical School. It is in a position to give adequate and careful laboratory instruction; it has filled its chairs of anatomy, pathology, bacteriology, physiology and chemistry with well-trained men, some of them called to the Philippines especially for the purposes of the school, others directly connected with the Bureau of Science, but doing their share in the work of teaching. In the more advanced years, after the foundation of laboratory training is laid, it gives equal advantages to its students in having on its faculty men who have made reputations in their lines of work in tropical and clinical medicine, in surgery, obstetrics, hygiene and public health, in medical zoology, clinical microscopy, pediatrics, medical entomology and other branches, some of these teachers being from the profession at large, others from the Bureau of Science and yet others from the Bureau of Health and the medical staff of the constabulary. The school has ample laboratory equipment; it is about to construct a new laboratory building; the plans for a new pavilion hospital are complete and construction work will soon begin. In other words, the school is equipped to give a thorough, modern course in medicine with all the exactness incident to a good foundation of laboratory work. The course extends over five years.

The students are enthusiastic, as well prepared for passing the entrance requirements as can reasonably be

expected, and they certainly follow the work remarkably well. The indifferent or lazy ones, so often the bane of the teacher in the United States, seem to be almost entirely absent.

These are the missionaries whom we hope to send among the people in the course of the next few years. They will be so well grounded in the fundamentals of their profession that they will be convinced of the scientific basis of the hygienic measures they will advocate; they will be able to reach the people with sincerity and truth, not in a half-convincing or half-convinced manner; and, above all, they will be of the people. The result will be that the graduates will eventually be able to bring about an improvement of hygienic conditions from within, and by their work will finally succeed in combating superstition and introducing rational methods of thought in regard to disease. They will be able to advance the condition of the masses so as to eliminate causes of excessive mortality, will curtail the spread of epidemic and will improve the general health conditions to such a degree that the Filipino people will increase in numbers, in physical strength and in mental power, so that ultimately they will be able to take the position to which nature has entitled them. The foundation of the Philippine Medical School is therefore one of the great works of the present government; in it Americans and Filipinos are working side by side, advancing the standard of medical education as well as the prosperity and well-being of the country.

A FURTHER CONTRIBUTION TO PALLIATIVE OPERATIONS FOR BRAIN TUMOR*

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Since the publication of the paper by Dr. Charles H. Frazier and myself,¹ some articles of much interest bearing on decompressive operations have appeared. It is the author's intention to refer briefly to the more important of these, to report some cases not included in the former paper with Dr. Frazier, to discuss palliative operation where choked disc is the only important sign of intracranial disease, and to report cases of this character, to speak of rapid increase of blindness under certain conditions as a result of decompression, and of palliative operation performed when the respiration has ceased, but the heart is continuing to beat.

Recurrence of choked discs may occur after decompression, as described by de Schweinitz and Thomson.² Their patient was trephined for the relief of the symptoms of a tumor, believed to be situated in the right motor area. The tumor was not removed. Three and one-half months after operation the double optic neuritis had subsided and there was postneuritic atrophy. One year later the patient returned with all the symptoms of brain tumor re-established, from which he had

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¹ Read in the Joint Meeting of the Section on Nervous and Mental Diseases, and the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908. Because of lack of space the clinical histories are here abbreviated, but the complete article appears in the Transactions of the Section and in the author's reprints.

1. THE JOURNAL A. M. A., Sept. 1, 1906, p. 679.

2. Arch. Ophth., 1905, xxiv.

been entirely free, totally blind and with double optic neuritis, the apex of each swelling being 6 D., or as high as it had been before the original operation.

De Schweinitz³ states that his experience has been somewhat as follows: Usually there is no marked change in the swollen nerve head after trephining in which the dura has been opened, or after the removal of a tumor, until the tenth to the fourteenth day. He has not seen decided subsidence of engorgement edema at the end of forty-eight hours, except in one instance, when within that period, following the removal of a cerebellar cyst, there was a decline of several diopters in the height of the swollen papilla. It is not uncommon to find within the first thirty-six hours, and even earlier, a diminution in the congestion of the retinal vessels. After the tenth to the fourteenth day there is gradual subsidence of the neuritis, from six weeks to two months being required for its complete disappearance. The ultimate vision may be (a) better than that which existed prior to the operation; (b) equal to that which existed prior to the operation; (c) worse than that which existed prior to the operation. Sometimes total blindness results.

In the cases with preservation of vision, either as good as or better than that which the patient possessed before the operation, the sight may be better in one eye than in the other, or exceedingly defective in one eye and good in the other, or one eye may be blind and the other retain or regain excellent vision. The most satisfactory results follow the reduction of great intracranial pressure, provided the papillitis or choked disc has not so long existed that it has already destroyed the optic nerve fibers. He gives the results in three cases.

In a certain number of cases de Schweinitz found that during the first day or two after trephining there may be a slight increase in the neuritis, or a slight increase in edema, associated with fresh hemorrhages. This is apparently of no importance, as the added edema and fresh hemorrhages disappear in the subsequent general subsidence of the swelling. In some of these cases there are marked degenerative changes in the retinal vessels. De Schweinitz, on several occasions, noticed a temporary depreciation of vision within the first week after the operation, probably due to shock or hemorrhage, and which, apparently, is of no importance in the subsequent preservation of vision, provided the primary vision has been good and the neuritis of comparatively short duration. Where little vision exists prior to trephining, this may rapidly disappear after trephining, especially if there has been much hemorrhage.

Bruns,⁴ in his excellent work on tumors of the nervous system, puts the matter of decompression in this manner: "Shall one refuse this possibility [palliative operation] of considerable relief from the disorder to those in whom a localizing diagnosis is not possible even after longer observation, or removal is unattainable? I think we are not justified in so doing." In speaking of saving sight by decompression, Bruns mentions that many persons with brain tumor may live long, and that all the symptoms of tumor may disappear spontaneously, except that blindness may become complete. Such a case seems to be Case 5 of the paper by Dr. Frazier and myself, which is referred to further on in this article. In cases of this character, decompression would probably have saved the sight.

The danger of blindness is great when vision begins to fail with choked discs, and flecks of fatty degeneration in the retina are always serious. If the tumor implicates the basal visual tracts, decompression can not prevent blindness. Usually, this may be recognized by typical contraction of the visual field, and then decompression is not to be recommended.

Some have held that it would be well to rest content with decompression when the tumor is in the posterior cranial fossa, and not to attempt its removal because of the danger in so doing; this opinion Bruns does not share. I must confess that I am partly persuaded that in many cases decompression is the best procedure, as the attempt to remove a tumor of the posterior cranial fossa usually terminates fatally, or the condition of the patient after the removal of a tumor from the cerebello-pontile angle is so pitiable that death is welcomed as a release. It is true that a few brilliant cases are on record, but many failures are recorded. Further improvement in technic may make these operations on the posterior cranial fossa more successful. I am referring especially to the cases in which the tumor is in the cerebello-pontile angle.

Relief of pressure is not obtained in all cases by trephining and opening the dura to allow escape of fluid, and the decompression is not without danger. Bruns advises against it when the patient is in deep stupor, and, at the same time, the symptoms indicate that the tumor is very large; palliative operation could only serve to restore a consciousness which mercifully has been lost. He is not referring to decompression in the sudden attacks of syncope in cases of brain tumor; such as I have seen repeatedly. Bruns thinks the dura must be opened in palliative operations, and this view I fully share. In one of his cases, Bruns recommended operation over the left parietal lobe, the prolapse of the brain that followed caused ataxia and optic aphasia, so that under some conditions the results of decompression may be serious. A less important region should be chosen for decompression.

When the cerebrospinal fluid does not escape after trephining, and relief of pressure is not obtained, Bruns recommends puncture of the ventricle, following the teaching of Wernicke, Sahli, Kocher, and von Bergmann. Continuous drainage may be employed. Lumbar puncture Bruns regards as dangerous in brain tumor, as the medulla oblongata may be crowded into the foramen magnum and obstruct it so as to prevent the escape of fluid. This opinion experience has fully confirmed.

It is necessary to mention that some authors speak of trephining as synonymous with decompression. The opening in the skull should be larger than that made by a trephine when relief of pressure is sought.

Alfred Saenger⁵ reports 19 cases of brain tumor with palliative operation. In two cases, improvement occurred after the trephine opening was enlarged so that more cerebrospinal fluid could escape. In two cases trephining had no beneficial results as the tumor was too large. The condition was made worse only in one case, and in this the tumor was at the base. In all the other cases beneficial results were evident. Saenger states that Finkh, in 1904, collected 31 cases from the literature; in 30 of these the choked disc disappeared; in one case the symptoms increased. According to his statistics, palliative operation causes improvement of vision in 73 per cent. of the cases.

3. Univ. Penn. Med. Bull., April and May, 1906, and personal communication.

4. Die Gehirnhäute des Nervensystems, 2d edition, p. 282.

5. Klin. Monatsbl. f. Augenheilk., 1907, p. 145.

Saenger chooses as the time for operation the commencement of diminished visual acuity. He selects the region where the tumor is supposed to be, but when this is impracticable he recommends the decompression to be done over the right parietal region.

Lumbar puncture, or puncture of the lateral ventricle, is not to be compared with decompression, as either method is much less effective than decompression.

The dura was always opened in von Krüdener's⁶ cases. Only those patients were operated on who were in danger of complete blindness and were in a late stage, otherwise the author thinks the results probably would have been better. He states as certain that trephining causes altered conditions of the circulation and brings about a reduction of the choked discs, which is noticed in the first twenty-four hours following a diminution in the congestion of the blood vessels. The diminution in the swelling begins, however, on the second or third day, and the swelling does not completely disappear after two or three weeks, as the papillæ are still somewhat elevated. If the trephine opening grows together in such a way as to cause a continuance of the intracranial pressure, the papillæ soon attain their former prominence.

He does not hold a very positive opinion regarding the effect of trephining on inflammation of the optic nerve, as he had only one case in which probably basal meningitis was present, although the result seemed to be good. He has not observed a sudden reduction in the papilla immediately after the operation, although he has observed the eyegrounds during and immediately after the opening of the cranium. The change was always very gradual, and not until the evening following the operation or the next day could he say positively that the veins were somewhat smaller and the papilla and adjacent retina somewhat paler, although the arteries were not wider. Changes in the hemorrhages, in degenerative foci in the macula, or in the edema of the retina when present were always slight.

Subjective disturbance, unconsciousness, especially from brain tumor, disappear at times entirely, and he thinks trephining is proper when pain and the feeling as though the head would burst are present and blindness threatens, although he believes that a tumor grows more rapidly after the cranium is opened. The pressure of the distended third ventricle and of the distended floor of this ventricle on the chiasm can be removed at times by trephining. After we learn to distinguish between increased intracranial pressure of inflammatory origin and that of non-inflammatory origin, trephining will be more advantageous. There is more danger of prolapse of the brain with hydrocephalus in children. In hydrocephalus of childhood he found that the protruding brain so closed the opening in the skull in some instances that no liquid escaped and the bandages remained dry; in other cases the bandages were soaked the day following the operation.

Single or repeated lumbar puncture in twelve cases of brain tumor produced no effect on the choked discs. Also in cerebral tuberculosis lumbar puncture produced no improvement in the condition of the eyegrounds. Division of the dura of the optic nerve, recommended by de Wecker, was useless, and some stretching of the nerve occurred because of the small field of operation. In a case of cerebral tuberculous meningitis, in which an exudate was found in the sheaths of the optic nerves, lumbar puncture produced no visible change in the eye-

grounds. Lumbar puncture has been believed by quite a large number of writers to aid in recovery from meningitis, and where recovery occurs the optic nerves may be benefited, and puncture should be employed in syphilitic meningitis with papillitis. The effect is not to be determined by the ophthalmoscope, and consists probably in slight relief of pressure from the papillæ and brain, so that more blood may reach the diseased parts.

von Krüdener observed in one case that after removal of the brain pressure meningitis developed on the brain and optic nerves, and notwithstanding the intense inflammation the choked disc gradually and constantly diminished. This would seem to me to indicate that decompression may be useful in inflammatory conditions, but in a case of purulent meningitis, that Dr. Frazier and I recently have had, palliative operation was followed by death within a few days. von Krüdener and others (Bruns) have observed that after trephining in hydrocephalus choked disc disappeared, although no liquid escaped on account of the prolapse of the brain.

It is not necessary to assume the existence of phlogogenous substances in the cerebrospinal fluid to explain the choked disc of brain tumor and of hydrocephalus, and the inflammatory appearances so often present are a result of stagnation of lymph and of edema. In local brain pressure von Krüdener accepts the opinion of von Graefe, and explains them as the result of compression of the cavernous sinus and congestion in its venous tributaries. He thinks the future must decide whether it would be advisable to remove the bone about the chiasm under certain conditions to relieve choked discs. He has done puncture of the ventricle twice with the drill, according to Kocher's idea; the cases were not very suitable and the choking was not affected thereby. Wilbrand and Saenger⁷ believe that when the pressure is lowered in the spinal canal the medulla oblongata is pressed downward, and until the pressure is restored the circulation of fluid from the cranium to the spinal column is prevented.

Lumbar puncture has usually little effect on choked disc for several reasons, the pressure is not always the same in the vertebral cavity and the cranial cavity, and probably is higher in the cerebral ventricles than in the sheath of the optic nerve. After lumbar puncture the pressure on the brain is relieved and the circulation of blood is improved, and thereby poisonous products are removed; and probably it is useful in syphilitic choked disc. Lumbar puncture has been recommended by many as a therapeutic and diagnostic means for syphilitic choked disc.

von Krüdener speaks of two other forms of choked discs, viz., from aneurism of the carotid artery and after operations on the ear. The former may be unilateral one or two years, and later become bilateral, and may be accompanied by very high swelling. The latter occurs with abducens paralysis. Gradenigo assumes that a meningitis occurs at the point of the petrous portion of the temporal bone and extends to the optic nerve; other authors speak of edema and compression of the wall of the sinus from an edematous brain.

Risien Russell⁸ recognizes that it is useless to trephine for the relief of intracranial pressure when the patient is deeply comatose or the heart has failed, but he thinks it should always be attempted when the respiration alone has ceased and the heart is continuing to beat, even though the chances of saving the patient's life may be

6. v. Graefe's Arch., 1907, lxx, 69.

7. Die Neurologie des Auges, III.
8. Brit. Med. Jour., Oct. 27, 1907.

remote. He believes that some reported cases seem to show that by removal of a part of a tumor the growth of what is left may be retarded. This has always seemed to me very doubtful. He says he is strongly impressed with the value of trephining for the relief of optic neuritis in order to preserve sight, that he recommends that no patient suffering from intracranial tumor should be allowed to become blind when in this operative measure we have a means of preventing it, provided the operation is undertaken early enough. He does not believe that trephining will relieve every form of optic neuritis, whether due to increase of intracranial pressure or not. It would be worse than useless, he thinks, to trephine when the optic neuritis is of toxic origin. It seems to me, however, that this question is open to discussion.

Lumbar puncture can only be regarded as a temporary measure and can not be expected to relieve symptoms in the permanent way that trephining does. In lumbar puncture he thinks we have a means of relieving urgent symptoms of pressure, when to wait for a surgeon to trephine would be to allow the patient to die; or it is valuable when the patient's condition is too serious to permit the major operation, even when a surgeon is available. In both these classes of cases relief by lumbar puncture may be sufficient to permit of the major operation of trephining later. Lumbar puncture, in his opinion, is valuable for diagnosis and for the relief of urgent symptoms in cases of intracranial tumor, but is not likely to permanently relieve symptoms and prolong life or to effect a cure.

J. Mitchell Clarke⁸ recommends that when no localizing signs are present the trephining should be done at the site of a persisting tender area, and in one of his cases a large tumor of the upper parietal lobe was found in this way. Dependence on a tender area in one of my cases, Case 2 of the paper by Dr. Frazier and myself, proved unreliable. Clarke thinks a palliative trephining makes a later diagnosis of location more difficult.

Mr. Marcus Gunn⁹ states that when the papilla becomes more opaque and sometimes more prominent, the hemorrhages increase in size and number, there are inflammatory exudations on the disc and surrounding retina and vision has become impaired; the prognosis regarding the saving of vision is bad after relief of intracranial tension, although he has known useful vision obtained even in such unfavorable circumstances. Palliative operation to save vision is useless in the stage of gradually decreasing vascularity of the papilla, when parts of its surface become even paler than normal, while the prominence either persists or slowly subsides and the branches of the central artery become diminished in breadth.

Certain conditions Mr. Gunn emphasizes as important, viz.: The degree of swelling of the papilla in itself is not an accurate indication of the visual prognosis, and all the ophthalmoscopic appearances must be considered. The presence of retinal hemorrhages does not contraindicate surgical intervention, nor is retention of normal vision before operation a safe guide, though it is more favorable. Vision previously normal may be lost after operation. Visual improvement may ultimately be very satisfactory, even though long delayed. In one of his cases very slight improvement in vision was observed after two months, yet two months later the result was most satisfactory, one eye having regained 6/5 from 6/18, and the other 6/6 partly, from mere hand reflex. Some of the most striking results in vision he has observed after operation were in cases of cerebellar tumor.

So far as vision is concerned he has found that it makes little difference whether the tumor is removed or whether the dura is merely freely opened.

Mr. Gunn has had no experience regarding the relief of tumor papillitis by lumbar puncture; he believes it would not afford so thorough a relief as the cranial operation, and would need to be frequently repeated. He does not favor opening the optic nerve sheath immediately behind the globe. We may well, I think, ask why it should be recommended, as it does not relieve the other distressing symptoms. It would have to be performed on both optic nerves, and the opening is liable to soon close up.

Mr. Gunn mentions that tumor papillitis is commonly associated with hypermetropia and is relatively rare in myopia. It appears as if in myopia an increased pressure within the sheath space is less likely to affect the optic nerve and more likely to be relieved by filtration or absorption of the excess of fluid.

H. C. Thomson⁹ reports a case of tumor supposed to be in the temporal lobe in which palliative trephining caused gradual subsidence of the optic neuritis, and in a few weeks the discs showed only an insignificant trace of infiltration. During the six months following the operation the symptoms did not increase, but later did so. He refers to a case of cerebellar tumor in which palliative operation also was effective.

Merz¹⁰ has studied the causation of optic neuritis. He states that in his experiments, in which he produced increased intracranial pressure by injecting fluid, changes in the rabbit, consisting of venous hyperemia and arterial anemia of the retina and the appearance of vessels in and about the disc which usually are not visible in the healthy eye, can be brought about almost instantly. In dogs a longer time is required for the development of the venous hyperemia; the difference is owing to the different arrangement of the vessels in the eyes, that in the dog more nearly resembles the condition in man. The further changes in the fundus of the dog appear two or three hours after the beginning of the increase in tension. The papilla becomes gradually edematous, loses its sharp outlines, projects forward and acquires a rosy hue. After eight or ten hours the arteries and veins arch perceptibly in passing from the papilla to the retina, and they appear blurred, veiled or even in places interrupted from the edema and cloudiness of the tissues in which they run. Further observation is usually impossible because the animal dies.

In every case, dog or rabbit, the subvagal space about the optic nerve was found to be dilated. The cerebrospinal fluid passes between the dural and pial sheaths to the bulbar end of the space which ends in a blind sac. Since the intracranial tension does not diminish the liquid distends the subvagal space, and more excessively at its bulbar end. Thus arises the ampulla-formed dilatation described by Manz, Schultén and others. Frequently a round-cell infiltration is found in the sheaths of the nerve and the surrounding connective tissue and the subvagal space suggesting a perineuritis.

No one doubts the possibility of a choked disc arising in certain cases after the introduction of various poisons into the body. Experimental and clinical observations teach us that undoubtedly choked disc develops at times in consequence of local irritation of the papilla and optic nerve from toxins and various poisons. Solo-

9. Brit. Med. Jour., Dec. 21, 1907, p. 1761.
10. Arch. Ophth., 1901, xxx, p. 349.

wieff found that the introduction of the *Staphylococcus aureus* into the vitreous was in most cases followed by papillitis and choked disc. Selenowski made similar observations. Hallermann saw choked disc in a case of erysipelas of the face, Adamück in a case of retention of urine. The inflammation theory is admissible for some cases of choked disc but not for the majority of cases. No one has determined the presence of phlogogenous substances in cases of brain tumor, and it is in these cases that choked disc most frequently appears. For the unprejudiced investigator the mechanical theory has more points of plausibility than the inflammatory. Twenty hours of slightly increased intracranial tension is sufficient in dogs to cause edema of the optic nerve.

White blood corpuscles emigrate in large numbers from the vessels and form the round cell infiltrations, especially in the parts most exposed to pressure, such as the outer sheath and the neighboring tissues. Thus increased intracranial tension suffices to cause symptoms of stasis and even of inflammation in the optic nerve and papilla.

Increased intracranial tension alone is sufficient to produce choked disc. There is similarity in anatomic construction between the eye of the dog and that of man.

Brudenell Carter, in three cases of choked disc, made an incision through the outer sheath of the optic nerve, and in each case vision improved and the symptoms of papillitis decreased and all the other symptoms of increased intracranial tension vanished.

Other important papers on cerebral decompression that have appeared since our former paper¹ are those by Starr,¹¹ Chance¹² and Stieren.¹³

It is sometimes extremely difficult to decide what is best to be done when choked discs are the only sign of intracranial disease. The patient may otherwise appear to be in perfect health, and the physician hesitates to recommend the opening of the skull. It may be difficult to convince the patient and his relatives that a neoplasm probably is present, especially if the physician also be in some doubt about the diagnosis, and he is likely to be if choked disc is the only sign. There is the possibility that the swelling may be caused by nephritis or meningitis, and as yet we are uncertain whether or not the choked disc of meningitis is improved by decompression.

Antisyphilitic treatment may be beneficial and cause great improvement for a time, as in Case 1, but such treatment is known to be useful occasionally in glioma or other form of cerebral neoplasm. Valuable time may be lost by attempting to relieve the symptoms by mercury and iodid, and yet a too hasty operation is to be deprecated. The suggestion of decompression seems so terrifying to the patient, and so unnecessary in view of what appear to him as insufficient symptoms, that he is likely to be driven to consult some other physician, and possibly he may be assured in this consultation that he need have no fear and that recovery without operation will occur. When the patient finally consents to decompressive operation, valuable time often has been lost, and it may be too late to save the eyesight. The following case, in which operation was unavoidably delayed, illustrates these statements:

CASE 1.—Miss K., aged 20 years, was referred to me Nov. 15, 1906, by Drs. Fergus and Schneiderman.

Examination.—Dr. Schneiderman first examined her eyes Sept. 29, 1906, simply because she complained of headache.

He found slight optic neuritis and a flame-shaped hemorrhage in each eye, more marked in the right eye. An increase of optic neuritis was observed October 6, and by November 15 the swelling was 4 or 5 D. in each eye, and more in the right eye. Central vision was full, but the fields were contracted. Headache had been severe since June, and was both frontal and occipital. She had not had vertigo, but she felt as though she staggered, and yet her mother had not seen any ataxia. Nausea was felt November 14. Menses were always late, and were more delayed during the past few months. She had complained of numbness occasionally for more than a year, from the back of the head, down the neck into the left shoulder, and down the left arm. It was a sensation of pressure, not of pain. She had not had convulsions. Dr. Schneiderman found the pupils normal and no paralysis of ocular muscles.

Dr. C. H. Frazier performed a palliative operation Jan. 10, 1908.

The report of Dr. Van Pelt, who has had the patient under observation since the operation, is as follows: Jan. 30, 1908. In the right eye the swelling of the optic disc has decreased from 5 to 2½ D. since the operation. In the left eye the swelling has decreased from 3½ to 2 D. The optic nerve shows evidence of increasing atrophy, and the retinal arteries are becoming more attenuated. These atrophic changes are more decided in the left eye. The vision has markedly decreased in each eye in the last ten days.

CASE 2.—History.—Miss F., 19 years of age, was referred to me from the service of Dr. John H. Musser, Sept. 5, 1907. She had had headache since April, 1907, nearly every morning. The pain was back of the right ear and was sharp. This area of the head was not tender to touch. The headache disappeared almost every day about 11 o'clock, although occasionally it persisted all day. It was more severe in April or May, 1907, and at that time she had much nausea. She vomited often when she had the pain, and sometimes when the pain was not severe. She had some diplopia in looking toward the right, but she thinks it was formerly in looking toward the left. She was of fragile build, weighed 85 pounds, and appeared anemic. The patient's mother died of tuberculosis, though she herself had never had any distinct pulmonary trouble, and yet Dr. A. Fife found some suspicious signs at the right apex, but he was not positive of their value.

It seemed to Drs. Musser, de Schweinitz and Frazier and to me advisable to have a decompressive operation in order to save vision. Dr. de Schweinitz wrote Nov. 20, 1907: "I examined Miss F. yesterday and found the vision very much reduced as compared with what it was when Dr. Holloway first examined her on August 15, when it was 5/12, while to-day it is only 5/30, and that not quite perfectly. There has been very little change in the appearance of the optic nerves. They are swollen moderately, not more than 2 or 2½ D., possibly 3, while at that time they were swollen to 4 or 4½ D. Somehow the discs do not impress me as very surely dependent on increased intracranial pressure. I presume, however, that a simple trephining could do no harm, although I should think it very desirable to make it as nearly a bloodless operation as possible, because a very little additional drain would surely very greatly depreciate the vision. The results of trephining, however, I am inclined to think are very problematical." This latter view we all shared.

Operation.—A decompressive operation was done by Dr. C. H. Frazier Dec. 3, 1907. A small hernia formed at the site of operation. It was painful to touch.

The patient was discharged, January 22, in much better condition.

In the following case the question of decompression was considered, but the operation was not performed:

CASE 3.—C., a boy, aged 14 years, was sent to me Dec. 19, 1907, by Dr. G. E. de Schweinitz, with the following report: Double optic neuritis is subsiding, with every indication of rapid atrophy beginning. The swelling of the disc is now about 4 D.; apparently no paralysis of any external ocular muscles exists; very curious symmetrical defects are seen in the nasal field of each eye. Such defects, however, I think are now universally conceded to be due, not to lesion around the chiasm, but to lesion of the optic nerve itself, and I have

11. THE JOURNAL A. M. A., Sept. 22, 1906, p. 926.

12. Penn. Med. Jour., August, 1907, p. 877.

13. Ophth. Rec., March, 1908, p. 12.

seen them before with optic neuritis when there evidently was no chiasm lesion.

History.—The boy had scarlet fever at the age of 3 years, which left a discharging ear. In March, 1904, he was operated on for mastoiditis. He had very severe nephritis at that time, and was in a serious condition after the operation. The discharge of the left ear continued after the operation. Optic neuritis was discovered in October, 1906. He had not had headache, dizziness, nausea or vomiting.

Examination.—I found that the left pupil was a little larger than the right, both irides responded to light, the left iris not so promptly as the right. He was partially deaf in the left ear. A careful examination failed to reveal other signs of disease. The case seemed to Dr. de Schweinitz and to me unsuitable for a palliative operation. A cerebral abscess might be present, and if this were the cause of the optic neuritis decompression might be of benefit. Rapid optic atrophy was present, and the report of the urinary examination was: one-fifth of 1 per cent. of albumin; no sugar; hyaline casts and cylindroids; and a specific gravity of 1016. It seemed probable, in the absence of all other cerebral symptoms, that nephritis was the cause of the atrophy, and a palliative operation was not performed.

The increase in the blindness which follows relief of intense intracranial pressure, and possibly the hemorrhage into the retina which occurs in some instances, as in Cases 4 and 5, may be explained by the sudden relief

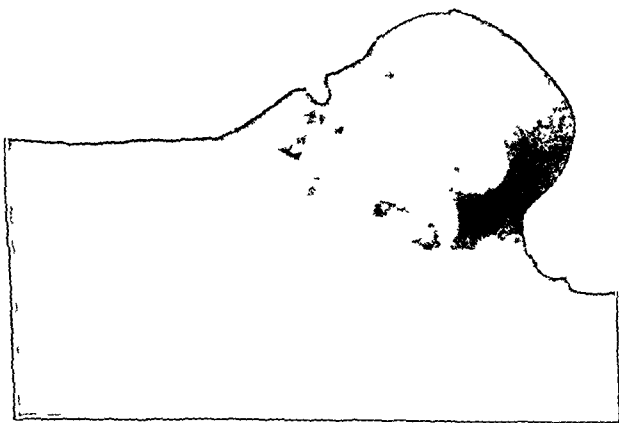


Fig 1—Showing the cerebellar position of upper limbs caused by a large tumor at the base of the brain displacing the cerebellum (Fig 2)

of the extracerebral pressure, with persisting intradural pressure. Cushing¹⁴ remarks: "It must be remembered, however, that the sudden removal of pressure from the brain when the blood pressure has been forced to considerable heights, may be followed by a paralysis instead of a release from the major compression symptoms. The occasion of this is readily brought out by postmortem examinations, which, under such circumstances, often-times discloses a brain and medulla of a uniform cherry-red color, from the widespread extravasation of blood, due to the multiple rupture of the minute blood vessels. The external supporting pressure of the high intracranial tension has been suddenly removed, leaving the internal or intravascular pressure too great for the strength of the vessel walls."

De Schweinitz thinks the increase in blindness which occurs in advanced cases is caused by the loss of blood in the operation (personal communication).

The following two cases illustrate the occasional occurrence of retinal hemorrhage after palliative operation:

CASE 4.—This was a case of cerebellar cyst, in the service of Dr. Wharton Sinkler. Dr. de Schweinitz stated that there was exceedingly rapid subsidence of the optic neuritis, but, in spite of it, rapid loss of vision occurred. There were symptoms of cerebellar tumor, and the operation, in two stages, was performed by Dr. Wm. J. Taylor. A cyst protruded when the skull was opened on the left side, ruptured spontaneously, and a stream of clear, straw-colored fluid squirted at least a yard. Considerable hemorrhage occurred at the first operation. The

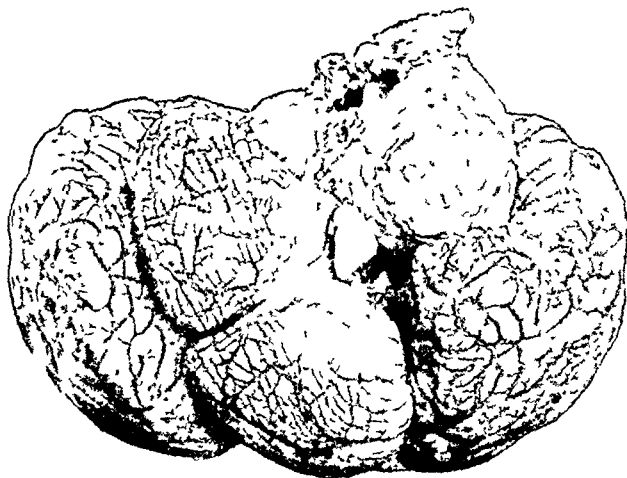


Fig. 2—The tumor has twisted the cerebellum on its axis and pushed it between the occipital lobes

boy improved after the operation, except that immediately following it a hemorrhage developed in the right eye, and resulted in complete loss of vision.

CASE 5.—W. R., 43 years of age, white, house painter, was a patient of Dr. C. S. Potts, with whom I saw the patient, and to whom I am indebted for the notes.

History.—Family history negative. He has used considerable alcohol, has had much family trouble of late. Syphilis

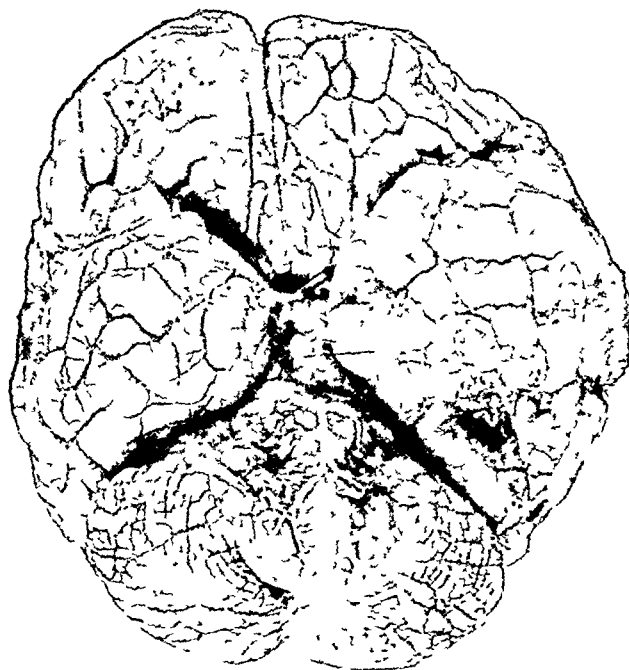


Fig. 3—A large glioma occupied the greater part of the left temporal lobe and grew as a wedge-shaped process over the left cerebral peduncle (indicated by the line). The left temporal lobe was much enlarged.

denied. He was struck in the right temporal region with brass knuckles one year before admission (Nov. 6, 1907). Symptoms of present trouble began about September, 1906, with headache and dizziness. On admission he complained of

severe constant headache, worse at night, situated in right parieto-occipital region; of vertigo and excessive vomiting, not dependent on taking food. He had cerebellar gait, usually, but not always, fell toward the right. Slight ataxia in the right arm was present when finger to nose test was attempted, but there was no weakness of cranial or spinal nerves. The reflexes were about normal, except that the patellar reflex was slightly exaggerated on the right side. No Babinski sign was obtained. He had diplopia at times. Nystagmus was seen in both eyes when he looked either to the right or to the left.

Examination.—Ocular examination was made by Dr. Fox Nov. 9, 1907. O. D. optic nerve decidedly red and vessels have pinched appearance as of optic neuritis. O. S., optic neuritis, slight hemorrhage just above optic nerve; slight paresis of left third nerve.

November 16.—Optic neuritis has greatly increased in both eyes. Veins exceedingly tortuous; apex of swelling, 7 D.

Treatment.—Operation by Dr. S. C. Burns Nov. 27, 1907. An opening was made in the occipital region, and the right lobe of the cerebellum was exposed, but nothing abnormal was found. The brain did not bulge unduly into the opening.

November 29.—Examination by Dr. L. Webster Fox. No change in the conditions found at examination on November 16. December 15: O. D., still pronounced swelling of nerve, with slight hemorrhages in striated form, showing through the outer halo of the circle, veins pronounced, arteries almost obliterated. Head of nerve intensely red. Probable change for the better. O. S., nerve still shows pronounced swelling. Hemorrhage of retina, down and out from optic nerve, extending to near equator as a broad band. Up and out on outer margin of optic nerve is a beautiful star-shaped hemorrhage, one-third the size of normal optic nerve.

The question has been put to me several times whether palliative operation might be of benefit when the patient with signs of brain tumor has suddenly fallen into coma. Risien Russell, as already stated, is in favor of trephining when respiration has ceased but the heart continues to beat, even though the chances of saving life may be remote.

Very frequently, in my experience, sudden death has terminated the symptoms of brain tumor, especially when the tumor is in the posterior cranial fossa. The patient may be no worse than he has been for months, and suddenly he becomes cyanosed, unconscious, possibly has convulsive movements and respiration ceases, but the heart continues to beat. It has seemed extremely doubtful to me whether decompression would be advisable under such circumstances. Death is almost certain, and the physician who performs or recommends a palliative operation when the patient is at the point of death is likely to be regarded by the relatives as having hastened the fatal termination. Such operation, done at a more suitable time, I believe may materially lessen the danger of these sudden and usually fatal attacks.

A patient with brain tumor, who had also been under the care of several of my colleagues, recently died in my service at the Philadelphia General Hospital. A very large tumor was found in the posterior cranial fossa. The occipital lobes had been pushed apart and the cerebellum had been displaced almost to a right angle with the brain stem. Undoubtedly decompression in the posterior cranial fossa, by allowing space for the development of this tumor, would have removed much discomfort (Figs. 1 and 2). A case of sudden death, in which the question of palliative operation in the period of coma was considered, is the following:

CASE 6.—History.—A man, aged 28 years, was referred to the University Hospital by Dr. J. W. McConnell Jan. 30, 1908. He had been complaining of headache during a year, of vertigo during two months, and of vomiting during one month. He was a brakeman and had been injured frequently. A year before admission he had had attacks of spasmodic movement

in the left side of his body. In August, 1907, he had a sudden attack of twitching of the left side of the body, preceded by slight dizziness. He fell and probably was unconscious. He had had syphilis.

Examination.—On admission his gait was unsteady, and the staggering was increased by closing the eyes. The right pupil was larger than the left, and both irides reacted to light and in accommodation. The extraocular muscles were normal. The right nasolabial fold was not so deep as the left. Some ataxia was seen in the finger to nose test, especially on the right side. The right lower limb was stronger than the left. The right patellar reflex was exaggerated, the left slightly so. Ankle clonus was obtained on the right side, but not on the left side. A note made on February 1 is as follows: He has been complaining of severe headache, the face becomes flushed and the pupils dilated. He moans and cries and begs to be put out of his misery, but appears fairly comfortable most of the time.

I saw the patient February 4 about noon. He was suffering intensely from headache, threw himself about in the bed in an agony of pain, and caught hold of the resident when he came near him, begging to be killed and put out of his misery. He was quieted by a hypodermic injection. His suffering was so great that no examination could be made, and, knowing very little of his history, I did not feel justified in requesting an immediate palliative operation. About 3 o'clock in the same afternoon he was found on the floor unconscious, with very difficult breathing. He soon became cyanosed and respiration ceased. The heart action became slow and irregular. Artificial respiration was kept up until about 8:30 p. m., when death occurred. No necropsy was permitted.

I debated whether it would be advisable to have a palliative operation during the collapse, but it did not seem desirable. The chance of benefiting him thereby was very questionable. A similar case of brain tumor of one cerebral hemisphere under the care of Dr. Joseph Sailer was in the University Hospital about a year ago. Cessation of respiration occurred suddenly and artificial respiration was employed for several hours. A decompressive operation was performed by Dr. Edward Martin during the period of collapse without any benefit or any delay to the fatal termination.

Whether pain in itself can cause death or not I think is open to question, and it may be that the intense intracranial pressure with irritation may be the cause of the pain as well as of the sudden death, possibly by paralysis of the important centers of the medulla oblongata. Byrom Bramwell, however, believes that pain alone may kill. Where sudden headache is intense, as described in Case 6, and symptoms of increased intracranial pressure are present, it has seemed to me dangerous to delay decompression, and I regret that in this case it was not done, even though the clinical history was imperfectly known to me. This agonizing headache is sometimes too serious to permit any delay in giving relief by opening the skull.

About four weeks after the experience above related I was asked to see a case in consultation with Dr. Ernest LaPlace, in which symptoms of a focal cerebral lesion were said to have developed gradually within twenty-four hours. The patient, during my examination, had intense headache, and, fearing a fatal termination, I recommended immediate decompression. Trephining with slitting the dura was done and about two ounces of clear fluid escaped, with great temporary relief of the suffering within twelve hours. The opening probably was not sufficiently large.

Decompressive operation is not always beneficial, even when the patient is not in coma, and death may occur within twenty-four hours after a palliative operation, as illustrated by the following case:

CASE 7—History—A K, male, aged 25 years, was admitted to the University Hospital, March 4 1907, complaining of blindness, intense headache and vomiting. His mentality was much impaired. He stated that during the winter of 1906-7 he began to have weakness and soreness about the articulation of his jaw. The soreness afterward spread upward in his head. About two months before admission, he became blind in the right eye, and two weeks later he became blind in the left eye. He vomited frequently. He was unable to walk without support, and could not stand with the feet together, but could stand if they were separated. The head was thrown far backward, and any attempt to move it forward caused much pain. The left pupil was considerably larger than the right, and neither iris reacted to light. Corneal and conjunctival sensation and the lachrymal reflex on the right side were lost, as well as the sensation of the mucous membrane on the right side of the nose. The sensations of touch and pain were completely lost in the entire distribution of the right fifth nerve, provided no pressure was made. The mouth deviated to the right, when opened. The patellar reflexes were lost. Babinski's sign was present on the left side.

Dr de Schweinitz reported. Palpebral fissure about equal in width. Left eye slightly divergent. Left external rectus movement preserved. Movements of internal superior and inferior recti are markedly limited. No wheel movement obtained. Right eye. Loss of movement of external rectus and marked limitation of movements of superior and inferior recti, with almost lost internal rectus movement. There is extensive double optic neuritis with large retinal hemorrhages on the right side.

The case was believed to be one of tumor or syphilis of the base of the brain involving the right Gasserian ganglion.

Treatment—A decompression operation was done by Dr Frazier on each side of the head on April 11, 1907, just above the ear. The brain bulged much on the right side. The patient died the following day. An endothelioma was found at the necropsy, implicating the right Gasserian ganglion. Decompression in this case did not prolong life, and it may be, hastened the fatal termination.

In the following cases decompression was of benefit.

CASE 8—History—Ida K., a woman, aged about 21, consulted me Nov 3, 1906. She complained of failure of vision during two months. She had aborted four months previously, and headache began about eight days after abortion. It was sometimes frontal, sometimes occipital, and frequent. She had not had nausea, vomiting or convulsions. Menses returned after the abortion and had been regular.

Examination—The lower part of the right side of the face was weak in showing the teeth, the upper part of the face was not affected. She could not draw up the right side of the mouth separately. The tongue deviated slightly to the right. The grasp of the right hand was weaker than that of the left. The right lower limb seemed a little weaker than the left in resisting passive movements. The patellar reflex seemed to be exaggerated on the right side. The patient later came under the care of Dr Mills.

An examination of the eyes by Dr de Schweinitz, Nov 27, 1906, revealed double choked disc, no external muscle palsies and very contracted fields.

Treatment—Dr Frazier performed a palliative operation Nov 28, 1906.

The report of Dr de Schweinitz, December 9, is as follows. **Right Eye**—Optic neuritis apparently subsiding, +5 D (compared with +7 D before operation). Both sets of vessels very small. In both maculae there is some choroidal disturbance. **Left Eye**—Optic neuritis +5 D. Vision (uncorrected), each eye 4/9.

On December 11 the note was made that the patient did not have headache as before the operation and did not vomit. The patient was dismissed from the University Hospital and was admitted to the Philadelphia General Hospital, service of Dr Mills. Oct 17 1907. An examination was made by Dr Shum on October 22. Pupils respond very sluggishly, are well dilated. Both nerves show advanced optic atrophy following choked disc. The nerve heads are still swollen to a level of

6 diopters (2 mm) above the retinal level. The macular regions show no changes. The hernia had increased considerably in size.

Death occurred Dec 7, 1907. A large glioma was found in the left temporal lobe, growing over the left cerebral peduncle (Fig 3).

The improvement in the condition seems to have been of a duration of months, but as she was not constantly under observation the exact time is uncertain.

CASE 9—History—A B., 42 years of age, consulted me June 28, 1906. He had an enlargement of the skull on the left side above and in front of the ear. He complained of weakness on the right side of the body, slight ataxia, some motor aphasia, left sided headache, some difficulty in reading, and failure of memory.

Examination—Dr de Schweinitz found no evidence of optic neuritis, but there was slight overfulness of the retinal vessels.

Treatment—Decompression without opening the dura was performed, July 7, 1906. Almost complete disappearance of symptoms followed for about two months, and possibly the improvement would have lasted longer if the dura had been opened. A later operation revealed an endothelioma, which was removed. A full report of this case has been published.¹⁵

[THE DISCUSSION ON THE PAPER OF DR SPILLER AND THE PAPER OF DRS BORDLEY AND CUSHING WILL BE PUBLISHED IN CONNECTION WITH THE LATTER PAPER NEXT WEEK.]

DISLOCATION OF THE ASTRAGALUS AROUND ITS ANTEROPOSTERIOR AXIS

OPERATION, REDUCTION, RECOVERY, WITHOUT THE REMOVAL OF THE BONE

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NEW YORK

All forms of dislocation of the astragalus are rare, that is, the double or total dislocation of Malgaigne, a mediotarsal and tibiotarsal dislocation, in which the astragalus has been displaced from all its articulations. There are several forms, but dislocation by rotation or version is the least often observed. Kronlein, in 400 dislocations, did not see a single case. Gray says: "This dislocation of the trochlear surface of the astragalus from the tibio-fibular mortise is not of common occurrence, as the ankle joint is a very strong and powerful articulation and great force is required to produce it."

By far the majority of cases reported have been accompanied by a dislocation of some other bone, or a fracture, either of the astragalus or an articulating fellow.

The case that is reported herewith is without a complicating fracture or if a fracture was present it was of no consequence.

The accompanying radiographs are the first published which show the dislocation by rotation of the astragalus before and after operation.

This, together with the perfect results obtained without astragalectomy, makes the case of unusual interest and justifies description in detail.

Patient—M Mc N, female aged 32, weight 195 pounds, in perfect health very muscular was admitted to my service at the Harlem Hospital, June 24, 1904.

History—While descending a flight of stairs the patient tripped at the top and fell nearly to the bottom. She could not exactly describe how the fall commenced, but was conscious of and distinctly remembered that the initial accident at the top of the stairs was a turning in of the left foot, accompanied by severe pain in the left ankle. When near

the bottom of the stairs, her left foot was caught between two uprights of the bannister and the ankle joint received, as she continued in her downward flight, a second violent wrenching, with some superficial injury to the overlying skin and integument. I first saw the case on the second day following the injury. Reduction by all possible means and methods, without and with anesthesia, had been unsuccessfully attempted.

General Examination.—This showed the left foot somewhat inverted, sole pointing inward, slightly downward, and rather fully extended, with some elevation of the heel, which threw the skin and integument over the tendo Achilles, into two or three transverse folds or ridges, with intervening deep crevices. The external malleolus projected prominently, and the overlying skin was tightly stretched. The foot being so much inverted, the internal malleolus was even and smooth with the surrounding surface, and could not be seen as a usual prominence, though it could be distinctly palpated. Anteriorly, a little internal to the median line, between the malleoli,

forcibly extended, and inversion exaggerated. It will be noted that the contour of the skin, the topography of the foot, is smooth around the ankle joint. When one notes the deformity of the bony parts, he is greatly impressed by the lack of a corresponding deformity of the soft parts. This is characteristic of this form of dislocation and directly opposite to all other forms of dislocation of the astragalus. An outward, inward, forward or backward dislocation will produce a marked deformity. The astragalus appears somewhat too far forward, because of the angle at which the exposure was made. If the tube had been placed posteriorly, or if the leg had been rotated a little forward, so as to bring the fibula directly overriding the tibia, in the same plane at right angle to the plate, as in Figure 2, it would then be shown, as was demonstrated by the fluoroscope, and determined at the operation, that the astragalus was situated more posteriorly, was well within and firmly gripped by the tibio-fibular mortise. The astragalus is rotated outward around its antero-posterior axis, for an angle of slightly more than 90 degrees, so that

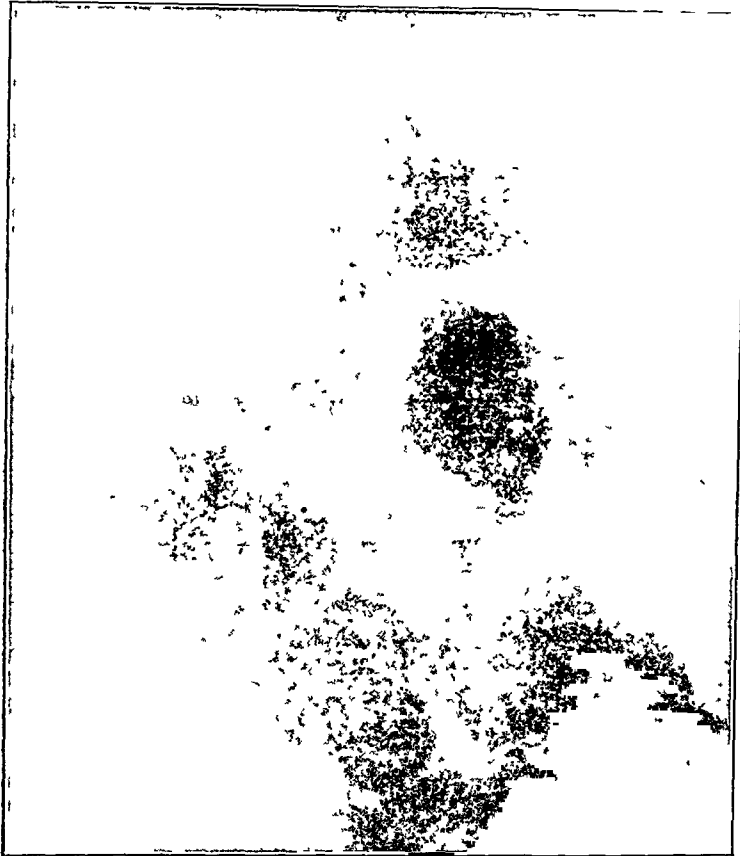


Fig. 1.—Dislocation of astragalus around its anteroposterior axis (left foot), before operation.

could be seen a slightly diffuse rounded projection, which on palpation could be easily recognized as the head of the astragalus, the rounded smooth surface that articulates with the navicular. By depressing the surrounding integument, the head could be firmly grasped between the thumb and forefinger, but it was absolutely immovable. Reaching from just in front of the internal malleolus, nearly to the median line, anteriorly, was a superficial sloughing skin wound, irregularly quadrangular in shape, about $1\frac{1}{2}$ by $1\frac{1}{2}$ inches in size. This wound was apparently produced by external violence, at the time the foot was caught between the uprights, and was not the result of pressure from within. The wound did not in any way communicate with the joint. There was almost complete loss of active motion, the foot being rather fixedly set and rigid. Passive motion, present only by force, was accompanied by great pain and rather limited. Any marked deformity of the foot was characteristically absent.

Diagnosis.—A diagnosis of dislocation of the astragalus was made, but it was not definitely classed until radiographed.

Radiographic Examination.—Figure 1 shows the left foot radiographed from without, inward before operation; that is, the inner surface of the foot rested on the plate, with the foot



Fig. 2.—Dislocation of astragalus (left foot), after operation.

the upper surface, which articulated with the lower end of the tibia, now points outward and slightly downward. The inner surface, which articulated with the outer surface of the internal malleolus, now points upwards and articulates with the lower end of the tibia. The head of the astragalus overrides the navicular. The external surface, which articulated with the inner surface of the lower end of the fibula, now rests on top of the os calcis. The small shadow in Figure 1, between the angle of the calcaneum and the fibula posteriorly, does not admit of positive description. It was stated above that if a fracture existed it was of no consequence; if this shadow is cast by bone, it is probably only a small rim of the posterior border of the astragalus that was pulled off by the posterior calcaneo astragaloid ligament, to which it was attached. It could not be palpated before nor during operation, and is not visible in Figure 2, and, if a fracture, was not of sufficient importance to complicate the dislocation. After a careful examination of the foot and a close study of the radiograph, Figure 1, it was apparent that the joint articulations of the astragalus were totally demolished; the ligaments, nutrient vessels and trophic nerves were surely destroyed, and it was decided that an astragalectomy was the only apparent means of saving the foot.

Operation.—On July 1 the whole foot and leg were thoroughly cleansed, particular attention being given to the sloughing wound over the inner aspect of the foot. This wound was vigorously attacked, with a determination to make it sterile; it was scrubbed with soap and brush, flushed with pure peroxid of hydrogen, swabbed with pure carbolic acid, and flooded with pure alcohol; thoroughly rinsed in bichlorid, and finally run over gently with the actual cautery. All this was done because our line of incision had to be made directly through this region. The head of the astragalus was now exposed through a longitudinal incision and firmly grasped by a heavy pair of bone forceps, but could not be moved. The tendo Achillis was then incised subcutaneously; then the joint became sufficiently relaxed to allow me to withdraw the astragalus partly without the wound. It was lying so loosely within its present position that it could easily have been removed without severing a tendon or ligament or tissue of any kind, and this is what I began to do; but the ease with which the bone could be manipulated, held now by only a small pair of mouse-tooth forceps grasping the head, led me to try to replace the same; so after rotating inward it was easily reinserted in its proper position. The upper half of the wound was sutured, the lower half left open, a small drain inserted, and a wet dressing applied. This was done on account of the sloughing wound and the feeling gained from the recorded experience and teachings of others that the astragalus would yet have to be removed on account of subsequent caries. A right-angled splint was applied to the foot.

Postoperative History.—There was a slight afternoon elevation of temperature for a few days following operation. The first dressing was applied on the third day after the operation. The wound was fairly clean, the eschar from cauterization, chemical and actual, separating cleanly. At the second dressing, applied on the fifth day, the wound was clean and granulating and all swelling disappearing. The drain was omitted. There was slight motion at ankle joint. From now on until July 22, the date of discharge from the hospital, recovery was uneventful. The patient walked from the hospital with the aid of a cane. On July 27, the date of the second radiograph, Figure 2, the patient was walking easily without assistance and without a limp. The wound was entirely healed; the joint was freely movable in every direction. There was no pain and recovery was complete.

The mechanism of dislocation of the astragalus by rotation is very complicated. The best explanation offered is probably that a rotating force acts on an already partially dislocated bone; whether this force is transmitted from the tibia above, or from muscular action, or from the resulting action of two opposing forces, is still undetermined.

In the case here reported there is a clear straightforward history of two distinct injuries, the second one of which was positively that of a rotating force. The first one may have partially dislocated, or at least torn the ligaments of the astragalus.

The difficulty met by experimenters of producing the dislocation on the cadaver would suggest the necessity of live muscular action for its production.

For further information concerning the mechanism of the dislocation of the astragalus, read the remarkable, if gruesome, experiments of Rochet.¹

Malgaigne reports six cases, all but one of which are rejected both by Barwell and Stimson. It appears that he reported one case twice. The case represented in Figure V, Plate XXX, of Malgaigne's "Atlas of Fractures and Dislocations," is taken from Dupuytren's "Museum." It was an old injury and showed ankylosis between the astragalus and os calcis, with rotation of about 45 degrees and some forward dislocation. Malgaigne says: "This piece has come under my hands through

former information. The dislocation was rather old, as the ankle has grown (or become attached) to the heel bone. The state of the bones seems to indicate that walking may be accomplished on this foot; but the subject supports itself, only on the outer edge of the foot, while the inner edge is highly elevated, and the toes turned inwardly, as with the inverted club-foot. The picture does not show this disposition, which I have neglected, in order to better demonstrate the conditions of the ankle. Add to this that the fracture of the fibula appears to be of quite recent origin, and certainly is not of the same date as the dislocation.

"What strikes me first is the projection of the ankle head at the same time forwardly and to the outside on the cuboid and scaphoid.

"But an even more curious displacement is that of the ankle body; its pulley, turned outwardly, extends almost entirely to the inner facet of the fibula, and the inner ankle facet is found under the tibial mortise. The turning is not, however, a complete quarter circle, as on the outside may still be seen a portion of the exterior ankle facet, which is hardly in contact with the peroneal malleolus pulley, and is at the same time looking downwardly and outwardly."

To Barwell² belongs the credit of having first accurately diagnosed, during life and before operation, a dislocation by rotation of the astragalus. Malgaigne and others had previously described this condition as impossible of diagnosis.

Barwell's very excellent report of the physical examination of a dislocated astragalus shows an extraordinary knowledge of topographical anatomy of the astragalus, recognized by palpation. Such exact knowledge is not often observed in these days, when we are learning to depend so much on the findings of the x-ray. Barwell, however, failing to reduce, did an astragalectomy. He says:

My view is that in all cases of dislocation of the astragalus, certain and sufficient, but not too persevering, attempts at reduction should be made. If they fail, the bone, unless dislocated backward, should be at once excised. . . . When torsion is complete, the only choice lies between an utterly useless foot, excision of the astragalus and amputation.

Recent literature contains a very few reports of cases of dislocation of the astragalus of any kind, and still fewer by rotation.

C. Lepoutre,³ interne under Duret, reports a case of astragalectomy; a small pen-and-ink outline of a radiograph by Desplates is shown, in which the astragalus is rotated through less than 90 degrees.

Villar⁴ reports a case of total rotation; as usual, however, he did an astragalectomy.

Croly⁵ says that it is a remarkable fact that if when the astragalus was dislocated forward, forward and inward, or forward and outward, it was not removed, it acted as a foreign body; but if it went backward where it had plenty of room, it did not do any harm whatever. His strong opinion was that immediate removal of the bone with careful dressing of the wound was the proper treatment.

Stimson says:

Expectation in irreducible compound dislocations of the astragalus has almost always ended in removal of the astragalus, or amputation, or death, and the cases will probably be very few in which primary removal of the astragalus

1. Rev. d'orthop., 1890, No. 6.

2. Med.-Chir. Tr. 1883, lxxvi, 39.

3. Jour. d. sc. méd. de Lille, 1905, II, 457.

4. Gaz. hebdom. d. sc. méd. de Bordeaux, 1905, xxvi, 153.

5. Brit. Med. Jour., 1899, I, 536.

supports it. With the first experience of pain or of irritation of any kind, the treatment should be stopped and a rest given. Most surgeons will, in cases in which there is a moderate amount of pus, prefer to give the treatment every three or four days at first, and later, once a week. The latter class of case appears to support the treatment much less easily than the former; at least, this has been my experience.

Few surgeons will choose to leave a permanent catheter in the ureter with the idea of securing free drainage for a pus sac. If the pus is at all thick, it will not flow through the catheter, and if it does not flow, retention is likely to occur and alarming symptoms may make their appearance. Cases illustrating this danger have been reported (Cases 23, 24 and 26). Nevertheless, so great an authority as Albarran⁹ advises, in case of thick pus, to leave the catheter in. Most surgeons, however, will prefer not to adopt this rule. It is especially dangerous in case there are general symptoms of infection.

In my experience renal lavage is not at all dangerous. I have performed this slight operation many times, and I have never seen the slightest ill effect. I have never seen renal colic following the treatment, nor has there ever been any unbearable pain. This result may be attributed to the fact that the greatest care was taken in the sterilization of the instruments which were used, and also to the fact that no attempt was made to inject a large amount of fluid with the idea of thoroughly irrigating the pelvis; as much good may be accomplished by repeated irrigation, using small amounts at a time, and there is less danger by following this rule than if an attempt is made to inject a large amount under great pressure. Albarran (loc. cit., p. 428) has had the same experience, and has never seen any ill effects. Casper¹⁰ is also of the same mind, and in his experience the method has been absolutely without danger. Casper feared that some irritation of the kidney might follow this method of treatment, but he noted particularly that those cases in which there was albumin before the treatment was instituted the albumin promptly disappeared.

Renal colic has been reported in a number of cases, but I think it is perfectly avoidable. Infection, of course, is to be borne in mind, but with a small catheter, and with extreme care and with clean instruments, it is, I believe, possible to avoid it. It certainly has not been more common, if one may believe the recorded cases, than infection following the use of the urethral sound.

In a few rare cases a slight degree of hematuria has been known to follow the introduction of the instrument. This has occurred once in my experience, but the effect was *nil*. Others have likewise mentioned it. Serious results are liable to occur in those cases in which there is pyonephrosis with general systemic infection. But these cases are not amenable to treatment by this method, and a catheter should never be passed in a case of this kind with the idea of emptying pus and curing the disease by irrigation. Desnos (Case 23) had a fatal result in a case of this kind, but he admits that it was an unsuitable case, and that he resorted to the method only because the patient refused a much needed nephrotomy. A slight degree of fever sometimes follows the treatment, and if it does, no attempt should be made to renew the treatment until the patient again has a lowered temperature.

INDICATIONS FOR LAVAGE

This method should not be used indiscriminately; in fact, I believe there are few cases in which it should be tried. Great caution must be urged in the selection of cases. Any ureter, if irritated by a catheter, will shed all kinds of epithelium, caudate, medium sized, and round. Such epithelia, if found in the centrifugized urine, does not mean that a condition of ureteritis or pyelitis exists; the findings are due to traumatism and nothing else. Bierhoff¹¹ also calls attention to this point. The best method of making a diagnosis of pyelitis and ureteritis in the female, is to place the patient in the knee-chest position and to collect the urine by means of a cystoscope directly as it drops from the ureteral orifice. If this urine contains the elements usually found in the inflammatory conditions, a diagnosis of pyelitis or ureteritis may be made.

Cases which are the most amenable to treatment are those in which there is a free discharge of pus, which has existed for a long time without showing much sign of diminution in amount. But these cases are exceedingly rare if there has been free drainage, and if there has been no obstruction to the flow of the urine at any part of its course from the pelvis to the bladder. The greatest care should, therefore, be taken in order to determine if any such lesions do exist; stone in the ureter, stricture of the ureter, kinks due to prolapse of the kidney, and inflammatory conditions of the bladder involving the ureteral opening and causing narrowing must all be carefully looked for.

Chronic pyelitis is often unrecognized and untreated for many years. Many cases of pyelitis, in the female, date from the time of pregnancy and immediately afterward. The majority of them get well, but some do not. Special care should, therefore, be taken to follow a case of pyelitis of pregnancy long after the disease has given any marked symptoms. In this disease the infection is an ascending one, and it is fair to presume that the exciting cause is pressure of the child's head on the ureter as it crosses the pelvic brim. It is curious to note that most of these infections are right sided. The bladder, as a rule, suffers very little or not at all, even if there is an abundant discharge of pus from the kidney. After the first few days of vesical irritability, the bladder ceases to give marked symptoms, and at the end of a week or two there is frequently no indication of disease on the part of the bladder, yet at the same time, there may be quite a considerable amount of pus in the urine. I have known such pyuria to exist for many weeks after the first infection of the kidney. It is in cases like these that the treatment is especially advantageous, but at the same time it should not be instituted too early.

I am decidedly of the opinion that acute pyelitis due to any cause should not be treated by this method, and I believe that most surgeons will bear me out in this point. To pass a renal catheter along a recently infected ureter, appears to me to be a very dangerous proceeding, because it may lead to severe general infection. In most acute cases recovery is the rule. I think it will be found that many of the cases in which this treatment is required are those in which there has been some previous affection of the ureter; either stricture or calculous disease, or else conditions in which the drainage from the kidney has been imperfect. A floating kidney is very apt to be associated with recurrent attacks of pyelitis.

9. Ass. Franç. d'Urol., Paris, 1898, III, 429.
10. Allg. med. Central-Ztg., 1895, LXIV, 916.

11. Am. Jour. Urol., New York, 1904, I, 34.

The displacement of the kidney produces a twist in the ureter, and engorgement of blood in the kidney is very apt to occur; subsequent infection is easy. The urine can not all escape, retention occurs, and we have conditions favorable for long continuance of the inflammatory process. One hesitates to advise nephropexy in such a condition, for fear that the inflammatory condition of the kidney may affect the healing of the wound and failure result, leaving the patient worse off than before. It is better in such a case to apply a well fitting corset, which will hold the kidney in place, and at the same time to irrigate the renal pelvis in an endeavor to cure the infection. When the infection has been gotten rid of, it will be time to consider a more radical operation.

Stricture of the ureter is very frequently responsible for chronic pyelitis and pyonephrosis. The first step is to dilate the stricture with the idea of establishing freer drainage. At the same time lavage may be carried on. In a long standing case, however, such a course does not offer much hope of a permanent cure, although it can not be denied that much relief may result. Kelly's patient (Case 30) illustrates this point. There was a residual amount of urine of 150 c.c. in the kidney sac when the treatment was first begun. Although the stricture was sedulously dilated, and the kidney sac kept carefully cleansed for a period of many weeks, yet in the end there was a residual urine amounting to 90 c.c. The infection, however, was gotten rid of. In this case there was undoubtedly a chronic flaccid condition of the walls of the ureter and of the pelvis of the kidney which did not allow of contraction to the original size, hence the permanent dilatation. In such a case there will be need of continual treatment, and reinfection is always possible. Ayers¹² calls attention to high attachment of the ureter in the renal pelvis, which forbids the thorough emptying of the pocket below, as the cause of long continued pelvic inflammation. Lavage will, in such instances, diminish the severity of the inflammation, but recurrence may be looked for at any time.

CONTRAINDICATIONS

Unsuitable cases are those in which the drainage is imperfect or can not be carried out. In this class are kidneys which have several pus pockets which do not communicate freely with the pelvis. Here obviously lavage will accomplish but little. Results of treatment must be doubtful when a pyonephrosis exists in conditions in which there is a tolerably large sac filled with pus. Of course, when such a condition is associated with marked systemic disturbances, the only relief is a free incision, and temporizing is clearly out of the question. In any pyonephrosis without general symptoms it is impossible to say whether lavage is suitable treatment or not, and the only way to find this out is by trying. If improvement follows, the treatment may be continued. If not, the treatment should be stopped. Inspissated pus in such a sac is very difficult to get rid of, and it may be a question if all the pus is ever entirely evacuated.

Israel¹³ analyzed his personal cases to see in how many of them renal lavage might have been tried when there was pyonephrosis. He had 81 such cases, and in only three of them, or 3.7 per cent., in his opinion, would renal lavage have been proper to consider. In 5 of these 81 cases there was spontaneous cure; in 39 of the remainder there was obstruction of the ureter, which made

the passage of the catheter impossible; in the remainder the nature of the disease would have made treatment unsuccessful. Among these there were 11 cases of tuberculosis and one of syphilitic gumma; in 18 there were calculi; in 13 the parenchyma was infiltrated with small abscesses; in 6 there was an obstruction in the first portion of the ureter; in 2 there was a valve formation; in 3 there were adhesions; in 1 there was a kink in the ureter. In all these cases catheterization with renal lavage would have been useless. In 4 of the cases the contents of the pyonephrosis could not have been evacuated because the pus and shreds were firmly adherent to the walls; in 12 cases the septic condition of the patient demanded rapid removal of the organ. In the other 15 cases the most favorable nephrotomy would not have attained a complete cure, because in two of them the pyonephrosis recurred and demanded nephrectomy; in 11 cases there was a urinary fistula which demanded removal of the kidney. Two of the patients died.

It is hardly necessary to mention that tubercular pyelitis is not amenable to this form of treatment. Instrumentation is painful in this condition and does much more harm than good. Casper¹⁰ does not believe that the treatment is worth trying in paralysis of the bladder with ascending infection. Here the cause of the disease is always present, and renewed infection is more than likely.

All are agreed that in pyelonephritis the treatment is harmful. Here we have an inflammation of the kidney substance, and it is difficult to see how irrigation of the pelvis could be expected to do much good.

I have already referred to the difficulty of improving the condition of chronic ureteritis in which there is much thickening of the ureter. Unfortunately, patients affected with this disease suffer intensely and it would be satisfactory to do something for them short of a radical operation. On examination by vagina a thickened ureter is often found; one must be on the lookout, however, not to mistake thickening due to new tissue formation for inflammatory edema. I believe chronic ureteritis in which there are marked tissue changes in the ureter to be incurable, and I do not think that lavage in cases like this is of the slightest avail. The only positive remedy for these patients is nephrectomy.

USE OF OTHER METHODS

If, after having faithfully tried renal lavage in a case in which there is free drainage from the kidney, and if the treatment has failed, the question of other methods comes up. If in such a case there is a severe grade of cystitis, the best method of treatment in the female is a cystotomy and subsequent lavage of the kidney pelvis. It may be well supposed that reinfection of the upper passage may occur in consequence of reflux of urine through the ureteral orifice, which has become dilated in consequence of the inflammatory condition. That such a dilatation of the ureteral orifice does occur can be confirmed by most of those who have had experience in this work, and it can be compared to the dilatation of the cervix uteri always seen in a well marked instance of inflammation of the uterine cavity. That the drainage of both the bladder and of the kidney is infinitely bettered by cystotomy there can be no question, and the only objection to it is the fact that the operation entails so much annoyance and care to the patient.

12. Intern. Jour. Surg., 1907, xx, 136.

13. Berl. klin. Wchnschr., 1899, xxxvi, 33.

We thus come back to Bozeman's original proposition, which was to do a preliminary cystotomy, in the female, before irrigating the renal pelvis. In two of the elder Bozeman's patients (Cases 13 and 15), and in one of his son's (Case 16), the improvement on the part of the kidney was prompt and marked, and ultimate recovery is recorded in two of these. I do not wish to be understood as recommending this procedure in all cases, for I think it is not necessary, but it is certainly an excellent method of treatment when the inflammation is general and affects the kidney and the bladder to a marked degree.

ANALYSIS OF CASES

In estimating the value of a therapeutic method, we have to rely on the experience of a large number of observers. There is necessarily some difficulty in drawing correct conclusions from published reports because it is not always possible to determine just what was meant by the reporter. Nevertheless, it is only by studying a series of cases that we can arrive at any conclusion whatever.

The first thing that strikes us is the fact that with few exceptions there has been an immediate and marked improvement in the nature of the case as soon as the treatment was instituted. This is unequivocal, and can be maintained with assurance. Furthermore, almost all observers agree that the treatment in properly selected cases, is practically devoid of danger, and that the end results are astonishingly good. In the cases which I have examined I have failed to find mention of the serious sequelæ which have been predicted by men who have really not given the method a fair trial, and it seems to me that if there had been bad results I should have found some mention made of them. This tallies with my own experience. Analysis of the thirty-nine chronic cases herewith presented is as follows:

Reported cured	13
Relieved	20
Result not stated	5
Died	1
	39

By cured is meant complete absence of symptoms and total disappearance of every trace of pus in the urine at the time the report was made. Of course, these figures do not, perhaps, represent the true state of the method, and it is probable that they give only an approximate idea. In some of the cases of cure, however, the result was really remarkable, and there seemed to be no question but that the treatment instituted had everything to do with a favorable effect. The cases in which cures were affected are the following: Nos. 5, 13, 15, 16, 17, 18, 19, 20, 22, 30, 33, 35 and 36. The cases in which relief was obtained are as follows: Nos. 1, 2, 4, 6, 7, 8, 9, 10, 11, 14, 21, 25, 27, 28, 31, 32, 34, 38 and 39. Those in which the final result was not stated are: Nos. 9, 14, 26, 31 and 32. Death followed in Case 23.

It is noticeable that in a large number of cases pyuria sometimes persisted a considerable length of time after treatment had been discontinued. These cases are as follows: Nos. 1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 21, 25, 27, 28, 29, 34, 37 38 and 39. I think that there is a decided tendency for pyuria to reappear even long after the disease has apparently gotten well, and I think also that one must be exceedingly careful in pronouncing the patient cured unless he is perfectly positive that every trace of pus has disappeared, and the only way, in my opinion, to determine this point, in the female at least, is to place the patient in the knee-chest position,

pass the oblique cystoscope of Kelly and collect the urine directly as it drops into the end of the instrument. If such urine is absolutely free from pus and germs the patient may be said to be cured.

A word may be said in regard to the unfavorable cases. They are the following: Nos. 3, 12, 23, 24, 26 and 29. In Case 3, a personal case, the patient had been suffering a long time from double pyelitis, and in addition there was chronic interstitial nephritis on both sides. I am inclined to think that this last complication had a good deal to do with the unsuccessful issue. The patient was thin, sallow, had been suffering a long time, and her powers of resistance were decidedly below the normal. I did not expect much from the treatment, and I was not surprised at the unfavorable result. In Case 12 there was a high attachment of the ureter, and the reporter (Ayres) did not expect much relief from the treatment. Case 23 was one in which operation was clearly indicated, but it was refused and the patient died. In Case 24 a permanent catheter was put in and shortly afterward it became blocked. A chill and high fever followed and the instrument was removed. The treatment was again tried and the same result took place. In Case 26 a permanent catheter was allowed to remain in for four days. The ultimate result was not stated, but the maneuver was followed by a severe chill. In Case 29 there was a distinctly unfavorable result in what appeared, at first sight, to be a case favorable for treatment. The disease was gonorrheal cystitis and pyelitis, and catheterization was followed immediately by a chill and high fever.

CONCLUSIONS

1. Renal lavage is but seldom required, and it should not be used indiscriminately. There must be careful deliberation before resorting to this method of treatment, and the patient should have been under observation a considerable length of time before the treatment is proposed.
2. Acute cases are not suitable for this method of treatment.
3. Thorough free drainage of the kidney through the ureter must be secured before permanent relief can be expected.
4. The most suitable cases are those of simple chronic suppurative pyelitis without obstruction, but these cases are very rare, and, unless the germ is a very virulent one, such patients usually get well in the course of time.
5. The method may be used in an endeavor to cure an inflammation in a hydronephrotic sac as a preliminary to nephropexy, but the kidney should be supported meanwhile by an appropriate apparatus.
6. It will at times get rid of the infection in pyonephrosis, but this rarely occurs. It should never be permitted in severe pyonephrosis with general systemic infection.
7. A permanent catheter in the ureter is very dangerous, especially in the presence of acute infection with general symptoms.
8. The treatment does little or no good in a case of ureteritis with marked tissue changes in the ureter leading to sclerosis and thickening.
9. Renal lavage is seldom followed by any serious harmful sequelæ.
10. Enough cases have not yet been reported to give a definite standing to the treatment.
11. Further trial is needed.

REPORT OF PERSONAL CASES

CASE 1.—History.—The patient, a female, 40 years old, was operated on two years ago for calculus of the lower end of the ureter. The operation was performed through the anterior cul-de-sac, and a large stone was removed. A fistula remained which lasted several weeks and then closed spontaneously. She was quite well for several months, and at the end of that time returned complaining of frequent micturition. The right ureter was catheterized and a considerable amount of pus was found in the urine. The ureter and kidney were then washed out several times with a solution of 1:2,000 alphozone at intervals of a few days. She took urotropin in the meantime. This treatment cleared the urine a good deal, and she experienced much relief. The treatment was discontinued.

A few months later she began to have considerable pain in the right kidney, and this was followed by fever, chills and general prostration, and there soon appeared a swelling under the right ribs. The condition growing worse, nephrotomy was advised and accepted. A large amount of pus was evacuated through an incision in the loin, and a careful search was made for stone, but none was found. An x-ray photograph by Dr. Percy Brown made previous to the operation was negative. The nephrotomy wound closed at the end of a few weeks, and she was in much better condition. There still remained a considerable degree of pyuria, and it was proposed to irrigate the kidney at regular intervals. Before doing this, a careful examination of the ureter was made for the purpose of determining the caliber of the canal. A number 15 F. bougie was passed through a cystoscope into the right ureter well beyond the site of impaction of the calculus which had been removed by operation. There was no stricture. It was evident, therefore, that the case was one of long continued pelvic suppuration, not dependent on stricture or stone. A bacteriologic examination of the urine showed the bacillus mucosus capsulatus. The case seemed a good one for trying this method of treatment.

Treatment.—At the time the treatment was begun, which was shortly after the nephrotomy, she was suffering from numbness in the right thigh and arm; there was much pus in the urine, a quarter of an inch on standing; she was urinating eight or ten times a day, and once at night, and her general condition was one of considerable weakness. Irrigation of the pelvis of the kidney and ureter was done every few days at first and later every week. The solutions used were a 2 per cent. boracic acid solution, and later a 2 per cent. and sometimes 2.5 per cent. solution of nitrate of silver. A stronger solution of silver produced so much pain in the kidney that it seemed inadvisable to continue its use. Altogether she had twenty treatments. There was no reaction and there never was any colic or unusual, unbearable discomfort. The patient always came to the office and returned home unaided. From the very first relief was experienced.

Result.—The amount of pyuria rapidly diminished, and at the last examination, made a short time ago, the right ureteral urine was almost clear, was acid in reaction, and the sediment contained only a very small amount of pus, a little blood, and a few small cells. It is evident, therefore, that the process is not at an end, and that the patient must be watched in the future. Her general condition, however, is much more satisfactory. She has gained in weight, the appetite is good, she sleeps well, and the bladder does not bother her at all, although there is still a considerable degree of injection of its mucous membrane, and the bladder urine, drawn with a catheter, contains a considerable amount of pus. It is thought that the bladder inflammation is kept up by the constant discharge of slightly purulent, bacteria-laden urine from the right side.

CASE 2.—History.—The patient was a woman 52 years old who had had gonorrhea many years previously. Since the infection she had always been troubled with her bladder. After the first violence of the inflammation had subsided, there remained a constant desire to urinate, which never left her night or day. The chief symptom was a constant irresistible desire to pass water, especially bothersome at night. The urine was apparently clear, but on careful examination the right ureteral urine was found to contain microscopic quan-

ties of pus, blood and a few casts. The renal catheter discovered a stricture on the right side about three inches from the ureteral orifice. The stricture allowed a catheter $1\frac{1}{2}$ mm. in diameter to pass.

Treatment.—The stricture was dilated until it admitted a No. 11 F. catheter, then an attempt was made to cure the pyelitis and ureteritis by means of injections of fluids into the renal pelvis. Several treatments were given and it was thought that there was some improvement at first, but the attempt was finally abandoned because the improvement was not marked. The solutions used were a $\frac{1}{2}$ and a 1 per cent. solution of nitrate of silver, a 2 per cent. boracic acid solution and a 5 per cent. ichthyol solution.

Result.—It can not be said that much benefit resulted from the treatment of this case, and it is my impression that in cases similar to this one, in which there has been a long continued inflammation affecting the pelvis, and especially the ureter, in which undoubtedly marked changes have occurred in the ureter, the treatment had better not be tried. It is difficult to see how the injection of a mild solution every few days, when at best only the superficial areas are reached, can favorably affect a long standing disease with deep seated lesions. In my opinion, a case like this had better be treated by palliative means, and if the suffering is intolerable and can not be endured any longer, I believe that it is justifiable to remove the kidney. The latter course, however, will be declined by most patients in view of the severity of the operation.

CASE 3.—History.—The following case is very similar to Case 2, and had a like result. The patient was a woman, 55 years of age, who had the uterus removed seven years previously. Since that time there had been a good deal of bladder irritation which had resisted all kinds of treatment. On examination there was some tenderness over the right kidney, and there was also tenderness of the left ureter on pressure through the vagina. The separated urines showed pyelitis on both sides, and there was also in addition chronic interstitial nephritis. There was a slight trace of albumin in each urine. The germ present in this case was the colon bacillus. The bladder was markedly inflamed, and there was general redness and an unusual amount of sensitiveness of the mucous membrane of the bladder. It was an extremely irritable cystitis.

Treatment.—On several occasions at intervals of a few days, the ureters were catheterized and the pelvis of the kidney irrigated. After each treatment the patient was made distinctly worse, and the treatment was abandoned. The injection of a specially prepared vaccine made from the germs in her case was likewise unsuccessful. The vaccine was persistently used for a period of six weeks, without appreciable result. There remains nothing else except a cystotomy for the relief of the intolerable suffering which the patient is now enduring. It is proposed to irrigate the renal pelvis after this operation has been performed, with the hope that a cure may be effected. The long duration of the case, however, makes this result somewhat doubtful, especially in view of the fact that there is a well-marked condition of chronic interstitial nephritis, which may prevent reparative processes.

CASES FROM LITERATURE

CASE 4.—ALBARRAN:¹⁴ Female, aged 29, for five or six years had pains in both lumbar regions and symptoms of cystitis; pyuria; both kidneys large and sensitive. Lavage of left kidney every second day, for fifteen days with boric acid followed by nitrate of silver, 1:1,000. A month later the same treatment five times. Result: The patient was much improved, the pains were less severe, and the urine was much clearer. (The right kidney seems to have given little trouble.)

CASE 5.—ALBARRAN:¹⁵ Female, aged 37. Right floating kidney was anchored in 1896. Two years later pyuria on right. Three treatments by lavage, two in July, 1898, two in April, 1899, with boric acid, followed by nitrate of silver, 1:1,000. (There was dilatation of the pelvis of the kidney in this case. The pelvis held 12 c.c.) Six months after the last treatment patient was reported well.

CASE 6.—ALBARRAN:¹⁶ Female, aged 74, had pains in left lumbar region. Cystitis. Lavage of left kidney, every two days, five times, with boric acid, followed by nitrate of silver, 1:1,000. The patient is much better and insists on interrupting the treatment to go to work.

14. *Ass. Franç. d'Urol.*, Paris, 1898, III, 421.

15. *Id.*, 422.

16. *Id.*, 423.

CASE 7.—ALBARRAN :³ Female, aged 68, had pains in left lumbar region. Catheterization shows slight pyuria on the left, but a good deal to the right. One lavage with boric acid, followed by nitrate of silver, 1:1,000. This patient did not return for several months, having felt better in the meantime. Catheterization then showed some pyuria on the right.

CASE 8.—ALBARRAN :³⁷ Female, aged 26, had severe pain on right side for a year. Abundant pyuria at times, and a good deal of fever. The right kidney can be felt three inches below the ribs. There was retention in the kidney of 15 c.c. Lavage of right kidney four times in two months with boric acid. The right kidney is much less painful, but is still quite large. The patient is able to work.

CASE 9.—ALBARRAN :¹⁸ Female, aged 30, had pains in left lumbar region for two years. Lavage of left kidney seven times in one month with boric acid. The patient is very much better; can eat with good appetite, has no fever and sleeps well. Final result not stated.

CASE 10.—ALBARRAN :¹⁰ Female, aged 52, in May, 1896, was operated on for calculus of left kidney; four stones were removed. The wound healed and the urine became clear. Six months later she returned with abundant pyuria. Left kidney somewhat large. The catheter evacuated thick pus from the left kidney. Number of treatments not stated, but it is said that she was treated twice a week for some time. The pus was thick, and great difficulty was experienced in evacuating all of it. Solutions: boric acid, followed by nitrate of silver, 1:1,000. The urine is much clearer, and the patient states that she is very much better.

CASE 11.—AYRES :²⁰ Female, aged 72, had renal calculi in left kidney for 15 years. Nephrectomy by Dr. Bremmerman. One month later pain in the right side with pyuria. Four lavages; solution not stated. Nearly normal urine, but there was a return of the calculus disease on the right at a later time.

CASE 12.—AYRES :²¹ Female, aged 46, had postpuerperal pyelitis 16 years previously. Pyuria and hematuria. Had been suffering pain in the left side for a year when seen by physician. Pyuria both sides, especially left. Lavage, left side, number of times not stated, with nitrate of silver in weak solution. Result, not stated. The author diagnosed high attachment of ureter on the left in this case from absence of floating kidney and from presence of residual urine in the kidney. Result unfavorable. Nephrectomy advised but refused.

CASE 13.—BOZEMAN, N. :²² Female, aged 34, had pain in left lumbar region before delivery. Vesico-vaginal fistula. Ill 4 months. The left ureter washed out daily through the fistula for six weeks, and at less frequent intervals for six months, with bichlorid of mercury, 1:20,000. At the end of six weeks the urine contained only a trace of pus; at the end of six months pyuria had disappeared. At the end of the year the fistula was closed and the patient had no further symptoms.

CASE 14.—BOZEMAN, N. :²³ Female, aged 32, had suffered for six years with symptoms of cystitis. Cystotomy had been performed by another surgeon five years previously. The drainage was insufficient. A history of pains in the right lumbar region for a long time, followed by pains in the left lumbar region. The left ureter was catheterized through the cystotomy wound, and the kidney washed out on three occasions with corrosive sublimate, 1:20,000. End result not given.

CASE 15.—BOZEMAN, N. :²⁴ Female, aged 34, had pains in right kidney for three years with symptoms of cystitis; gradually lost weight; abundant pyuria. Cystotomy was performed, and the right ureteral orifice was exposed. Later, when the edges had healed, a catheter was passed into the right ureter. Daily lavage for three weeks with corrosive sublimate, 1:20,000. At the end of three weeks the urine was clear. At the end of nine months the fistula was closed and the patient was well. She had gained twenty-five pounds in weight.

CASE 16.—BOZEMAN, N. G. :²⁵ Female, aged 26. Great prostration, fever, chills and abundant pyuria, with pains in right kidney region. A cystotomy was performed, and later the right ureter and pelvis were washed out several times in three weeks with corrosive sublimate, 1:20,000. "Immediate improvement," but no other details given. Nine months later the patient was well and the fistula was closed.

CASE 17.—BREMNERMAN :²⁶ Male, aged 29, had gonorrhea 8 years previously. Recurrent attacks of pyuria. Catheter showed pyelitis on both sides. Seventeen lavages with nitrate of silver, 1:5,000. Cured. Examined one month later and cure persisted.

CASE 18.—CASPER, L. :²⁷ Male, aged 34, pyonephrosis on right side. Held 300 c.c. Evacuation aided by massage. Treatment repeated two days later and catheter allowed to remain permanently. Six treatments in all. Urine clear but microscopically contained a few leucocytes. Solution, nitrate of silver, 1:1,000. Patient was kept under observation and was reported well, with clear, normal urine.

CASE 19.—CASPER, L. :²⁸ Female, aged 28, pyonephrosis following childbirth. Right kidney affected. Right ureter catheterized. Kidney sac held 150 c.c. Later the pelvis was irrigated. Three days later a diminution in volume of the tumor. Pelvis irrigated for six weeks at intervals of a few days. The urine from the right kidney was then clear. Kidney was somewhat prolapsed, but not enlarged. Solution, nitrate of silver, 1:1,000. Patient followed for nine months, and continued well. Urine was clear and free from pus.

CASE 20.—CASPER, L. :²⁹ Male, aged 28, left chronic gonorrheal pyelitis. Kidney pelvis with 60 c.c. Lavage every two days for twenty treatments, with nitrate of silver, 1:1,000. After the

second treatment a marked improvement was noticed. Less pus and less albumin. By the sixth treatment the urine was entirely clear and was free from cells with the exception of some epithelium from the ureter. The subjective symptoms also improved. At the end of four months the patient was discharged as completely cured. Free from all symptoms and urine clear. No pus and no albumin.

CASE 21.—CASPER, L. :³⁰ Male, aged 34, subacute gonorrheal pyelitis, severe case. Patient had been treated by a permanent catheter in the ureter, but no benefit resulted. A large amount of pus was evacuated. Lavage every day. During withdrawal of the catheter from the kidney fluid injected along entire ureteral canal. Much pain and tenesmus following the treatment. At the end of the second treatment the patient was much better. The urine was more nearly normal than for four months past. After this there was rapid improvement. One and two per cent. solutions of nitrate of silver were used. One month after treatment the urine was examined and was found to be nearly normal. There were only a few pus corpuscles in the sediment. Six weeks later an examination was again made, and the same findings were noted. The patient reported himself perfectly comfortable and apparently well.

CASE 22.—CASPER, L. :³¹ Male, aged 28, gonorrhea one year previously. Severe cystitis; left pyelitis. Lavage of renal pelvis six times with boric acid, followed by nitrate of silver, 1:1,000 and 1:500. Cured.

CASE 23.—DESNOS :³² Female, aged 28, cystitis and left pyelonephritis. Large tumor. Nephrotomy was refused, although clearly indicated. A catheter was introduced into the kidney and allowed to remain. A severe chill followed, with alarming symptoms. No attempt to wash out the kidney. Death on the fourth day.

CASE 24.—DESNOS :³³ Female, aged 48, one year's cystitis and right pyonephrosis. A permanent catheter was placed in the ureter, and this was removed immediately by a chill and high fever. While the catheter was in place the pus in urine suddenly ceased to flow. The instrument was left in for twenty-four hours. Six days later the operation was repeated, and again a chill and high temperature followed within three hours. No attempt at irrigation. Result, not stated.

CASE 25.—DESNOS :³⁴ Adult, pyelitis (sex and side not stated). Lavage four times, at intervals of eight or ten days. After each introduction a rise in temperature. Solution not stated. There was an improvement, but the pyuria returned as soon as treatment was discontinued.

CASE 26.—DESNOS :³⁵ Male, aged 45, stricture, cystitis, right pyelitis. No general symptoms. A catheter was introduced into the ureter, and this was followed by a severe chill. The catheter was left in for four days. No lavage attempted. Result not stated.

CASE 27.—FURNISS :³⁶ Female, aged 41; 23 years previously postpuerperal cystitis and pyelitis on the left side. Suffering was severe during the last five years. The catheter was passed into the left kidney, and a large amount of pus and urine evacuated from it. Seven treatments were given with boric acid, followed by nitrate of silver, 1:5,000. Great improvement followed, but no cure is recorded.

CASE 28.—ILLIES :³⁷ Male, aged 24, ectopia of bladder, bilateral pyelitis. Catheter inserted into the right ureter, pelvis irrigated with one liter sterile water, and afterward nitrate of silver injected. This was done for four successive days. There was great improvement, and six further treatments were given. The left ureter was similarly treated for ten days, and the urine then became clear on both sides. Solution, nitrate of silver, 1 and 2 per cent. Three months later urine again became cloudy. End result not stated.

CASE 29.—ISRAEL :³⁸ Adult, sex not stated, right gonorrheal cystitis and pyelitis. Ureter was catheterized, and this was followed by a chill and high fever, which lasted two or three weeks. There was no attempt at lavage. The urine became more cloudy, and for the next two or three years the patient was subject to chills and fever.

CASE 30.—KELLY :³⁹ Female, aged 31, symptoms of cystitis for some time. Abundant pyuria. On examination stricture of lower end of ureter was found. The patient was treated for a period of three months, during which time 117 separate lavages were given. The capacity of the kidney sac was 150 c.c. The inflammation was gonorrheal. Solution, boric acid, nitrate of silver 1 per cent., and bichlorid of mercury 1:150,000. There was a complete disappearance of the pus in the urine, and coincident with this the patient was greatly improved in her general health. She gained twenty pounds in weight, and felt better and stronger than she had for many months previously. She was seen six months later, and there was then a residual urine in the kidney sac of 90 c.c., but the urine was clear and contained no pus. The symptoms were insignificant.

CASE 31.—KELLY :⁴⁰ Female, aged 52, left nephrectomy; right pyelitis; colon bacillus infection. Cystotomy followed by irrigation of right kidney. Number of treatments not stated. Solution, nitrate of silver (strength not stated). Vigorous treatment almost caused bacilli to disappear, but not quite. The patient was much relieved, however, and was able to work. Final result not stated.

CASE 32.—KELLY :⁴¹ Female, adult, large right kidney with pyuria. A catheter was passed. This was followed by a chill. Later the attempt was resumed, and the kidney was washed out later at short intervals for three weeks. There was a good deal of pus in this kidney. Solution not stated. There was a gradual improvement, and patient finally went home. A year and a half later she was reported as well.

CASE 33.—KELLY :⁴² Female, adult, colon bacillus infection, cystitis and left pyelitis of four years' standing. Cystotomy; drainage. The bladder was cured. (No treatment appears to have been

17. *Id.*, 424.
18. *Id.*, 425.
19. *Id.*, 426.
20. *Intern. Jour. Surg.*, 1907, xx, 138.
21. *Id.*, 134.
22. *Trans. Inter. Med. Congr. Ninth Session*, 1887, ii, 545.
23. *Med. Rec.*, New York, 1888, xxxiv, 117.
24. *Am. Jour. Med. Sci.*, 1888, civ, 257.
25. *Am. Gyn. and Obstet. Jour.*, 1897, ii, 35.
26. *Am. Med.*, 1905, x, 997.
27. *Berliner klin. Wehnschr.*, 1899, xxxvi, 28.
28. *Berliner klin. Wehnschr.*, 1899, xxxvi, 28.
29. *Allg. Med. Central Ztg.*, 1895, lxi, 915.

30. *Allg. Med. Central Ztg.*, September, 1895, lxi, 913.
31. *Wien. med. Presse*, 1895, xxxvi, 1463.
32. *Ass. Fr. d'Urol.*, 1898, iii, 434.
33. *Id.*, 433.
34. *Id.*, 432.
35. *Post-Graduate*, New York, 1906, xxi, 337.
36. *Deutsch. Ztschr. f. Chir.*, 1905, lxxvi, 40.
37. *Berliner klin. Wehnschr.*, 1899, xxxvi, 34.
38. *Johns Hopkins Hosp. Bull.*, February, 1895, vi, 10.
39. *Med. Rec.*, 1905, lxxvi, 523.
40. *Id.*, 522.

given to the left kidney.) The fistula was finally closed, and after its closure the right kidney was treated seventeen times in all by lavage. Solution, nitrate of silver, 1:1,000. Cured and has remained well.

CASE 34.—KELLY:⁴⁰ Female, adult, left kidney inactive. Right kidney was secreting 2,250 to 2,400 c.c. in twenty-four hours. There was pyelitis besides. This patient was treated persistently for two years by lavage of the kidney. Solution, not stated. Great benefit resulted from this method of treatment, and the patient felt very much better. She died suddenly, presumably as a result of complications.

CASE 35.—KELLY:⁴¹ Sex not stated, adult. Patient had typhoid 30 years previously, and following this disease there was pyelitis, which had existed during thirty years. The patient was treated by lavage of the kidney (side not stated). The infecting organism was the bacillus typhosus. Solution not stated. Cured.

CASE 36.—LEWIS:⁴² Male, aged 28, gonorrhea two years previously. No local signs or symptoms on the part of kidneys, but on catheterizing it was found there was a slight pyuria on the left side. The left kidney was treated by lavage. Five treatments in all were given at short intervals with hot boric acid. Examined two months after the treatment, the patient was found to be well.

CASE 37.—PAWLK:⁴³ Female, aged 43, first seen in 1895, had been ill fourteen weeks, suffering from double pyelitis. The kidney was treated by lavage three times. She then disappeared for several months. Death took place a few months later. Solution, nitrate of silver, 1:1,000 and 1:5,000. Improvement followed the treatment, and the urine became clearer on the right, but not on the left side. The left kidney was the one most affected, and there was a severe pyonephrosis, which undoubtedly caused death.

CASE 38.—PAWLK:⁴⁴ Female, aged 47, had pains in right kidney, vomiting, general weakness, symptoms of cystitis. The right kidney was treated by lavage thirty-three times during seven months. During the first four months there was an improvement, and at the end of this time there was only slight pyuria. The treatment was then partially discontinued, and there was a relapse. The germ was the streptococcus. The general condition was good. Solution, corrosive sublimate, 1:20,000 to 1:40,000, boric acid, 2 per cent., and nitrate of silver, 1:3,000 and 1:1,000. On the whole, the patient was much improved, and was in fairly good condition while under treatment. She was seen 3 years after the treatment had been discontinued, and she was then in the same state. The urine when examined, always contained pus. Her general health is very good.

CASE 39.—WOSE:⁴⁵ Male, aged 28, gonorrhea 5 years before. Three years ago had a fall from a house. This was followed by tubercular spine, with ischio-rectal abscess. There was left pyelitis, with a heavy deposit of pus in the urine. The kidney was treated by lavage (number of treatments not stated); solution, boric acid. Result, "Did well."

THE EXPECTANT TREATMENT OF URETERAL CALCULUS

ITS INDICATIONS AND RESULTS *

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The Roentgen-ray method of diagnosis has fully demonstrated its accuracy and advantages in urinary lithiasis, so that the best surgical opinion holds that no operative procedure is complete or should be undertaken, even in obvious cases of stone, without the complete data which it affords.

In this paper the value of Roentgen-ray diagnosis in operative cases will not be discussed, and only those cases considered in which it renders non-operative treatment feasible and rational. Since the demonstration of a calculus in the kidney is an indication for immediate operation, only those cases of ureteral lithiasis uncomplicated by a renal calculus will be considered.

Can the indications for and against operation in ureteral lithiasis be determined with sufficient accuracy by known methods of diagnosis to justify non-operative, i. e., expectant treatment in a well-defined group of cases?

The accurate determination of the size, position and number of all urinary calculi by the Roentgen method made this seem possible. In a paper read before the Section on Surgery and Anatomy in 1901,¹ I pointed out the concomitant symptoms derived from other

methods of diagnosis, which, when taken in conjunction with an accurate Roentgen-ray examination, formed the basis for rational expectant treatment.

In that paper I said:

It is the Roentgen method of diagnosis that has shown the greater frequency of ureteral calculi. Their detection does not, however, constitute an indication for operation. The increased ratio of ureteral to renal calculi is due to their detection and recognition. They must have existed in the same relative proportion previously. The absence of symptoms, that would lead to their recognition, shows how tolerant the ureters must be. It shows that these calculi may be allowed to remain in the ureter, under certain conditions without grave danger. It therefore sanctions a conservative method of treatment, when that method is rendered safe by accurate knowledge of the condition that is present. The accuracy and detail afforded by the Roentgen method of diagnosis from this safeguard, and the rational basis for a differentiation between the cases demanding immediate operation, and those in which an expectant conservatism, under strict supervision, will often result in the passage of a calculus and complete recovery. It makes it rational to leave to natural methods, what has been recognized as possible for nature to accomplish without injuring the kidney.

The soundness of this procedure and its value in treatment has been demonstrated by the passage of thirty-one calculi in cases in which it was suggested and employed, as compared with fifteen cases in which operation was employed for ureteral stone.

By expectant treatment, as employed in these cases, is meant the careful medical supervision of the patient, with frequent examinations of the urine and estimations of the amount of urea passed.

The indications on which this course of treatment was based were the Roentgen-ray examination and the symptoms and signs as derived from other clinical methods. Without the accurate data furnished by the Roentgen-ray diagnosis such a course of treatment would not only be irrational but dangerous. There is little difference in symptomatology between the quiescent calculus in the kidney or ureter and that of an impacted calculus producing a unilateral anuria. The onset of symptoms is the same, and yet the anuria will result in the destruction of the kidney if unrelieved, for the symptoms subside and only clear urine flows from the sound kidney. Operation under such circumstances is imperative, but the exclusion of detection of a calculus in the ureter and the persistence of a bilateral urinary flow relieves the situation. The determination of a bilateral urinary flow by the cystoscope excludes anuria, but does not tell whether a calculus is present or not, and, if present, its position and size. Without such definite knowledge explanatory operation was necessary. On the other hand, the detection of a small ureteral calculus is not an indication for operation unless urgent symptoms are present, since its size makes it possible and probable that Nature will expel it. Without such definite knowledge, it is preferable to permit Nature to accomplish the expulsion, rather than to submit the patient to the risks of operation. The symptoms are in no way proportionate to the size of a calculus, nor can it be accurately located by them, or by palpation.

The Roentgen-ray method by itself does not furnish data on which a rational course of treatment can be based, unless it shows a calculus in the kidney or one too large to be readily passed in the ureter, when operation is indicated. It is only when the knowledge it affords is taken in conjunction with the clinical his-

41. *Id.*, 521.

42. *Ann. Surg.*, 1903, xxxvii, 24.

43. *Rev. de Gyn. et de Chir. Abd.*, 1897, i, 805.

44. *Id.*, 787.

45. *Inter. Jour. Surg.*, 1906, xix, 229.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. The Indications for Operation in Calculous Nephritis and Ureteritis, *THE JOURNAL*, Nov. 30, 1901, p. 145.

tory, symptom-complex and microscopic and chemical analysis of the urine that a rational course of treatment can be instituted.

The results of expectant treatment, based on these combined data, show that Roentgen-ray diagnosis adds the knowledge which makes successful a course of expectant treatment in 60 per cent. of the cases of ureteral calculus. If Nature is capable of expelling these calculi in so many cases, why should these patients incur the grave risks of operation on the ureter? No injury can result from this treatment carried out under careful medical supervision, while if urgent symptoms arise the exact localization renders operation precise and effective.

The indications on which rational expectant treatment can be based, after Roentgen-ray examination has determined the position and size of a small ureteral calculus, are derived from a careful clinical history, direct physical examination and chemical and microscopic analyses of the urine.

The detection of more than one ureteral calculus is not a contraindication to this method of treatment, since in a number of cases multiple calculi have been passed.

The importance of a complete and carefully taken clinical history can not be overestimated. From it can be deduced the amount of power present to expel the calculus and the chances of its final accomplishment. In favorable cases, the history shows a succession of attacks of acute ureteral colic increasing in frequency. They mark the steps in the progress of the calculus down the ureter. The pain is most acute during the attacks, and is localized at the seat of the calculus. Between the attacks there is a constant lumbar ache, as the urine is banked up in the pelvis of the kidney, increasing in intensity just before the acute attack of colic. These symptoms show that there is sufficient vitality in the kidney and a *vis a tergo* essential to the final expulsion of the calculus. Other symptoms noted in my previous paper before this Section are of value in estimating the progress of the calculus and in corroborating the Roentgen-ray findings.

The symptoms that contraindicate the use of expectant treatment are the presence of fever, indicating an acute pyonephrosis or an absence of bilateral urinary flow with the subsidence of acute symptoms. These conditions point to immediate operation, as does the presence of an ureteral calculus too large to readily pass.

Palpation may disclose a hydronephrosis and hydro-ureter, but in the absence of fever and the presence of acute pain these only indicate the presence of the natural forces which finally expel the calculus. A calculus at the uretero-iliac junction may be palpated, and gentle massage may assist in its passage beyond this point of constriction, but must only be employed with the greatest care.

Chemical and microscopic analyses of the urine, repeated at frequent intervals, are absolutely essential to justifiable expectant treatment. The presence of pus or blood is not an indication for operation, if the calculus is small and no hyperpyrexia is present. Albumin is the most constant sign in urinary lithiasis, and is not an important factor when present in a moderate amount. The estimation of the total amount of urea excreted determines the functional efficiency of the kidneys, and so long as it remains normal it shows that no undue strain is placed on them.

The indications for expectant treatment in cases in which a small calculus has been treated by the Roentgen-ray method are a history of repeated attacks of colic, increasing in frequency, with a constant lumbar ache, a urine free from any excess of morphologic elements and having a normal amount of urea and these combined with an absence of febrile symptoms.

The contraindications are a calculus in the kidney or one in the ureter that is too large to pass, a marked amount of pus in the urine with high fever, or a persistent unilateral anuria without symptoms.

The adjuvant treatment employed is to relieve pain, to relax spasm, to prevent the formation of more crystalline debris and to hasten the expulsion of the calculus.

The relief of pain in the acute attacks of colic must sometimes be accomplished by large doses of morphin, or even general anesthesia to the point of relaxation. Atropin should always be given in conjunction, as its effect in relaxing the spasm of the involuntary muscular fibers is of great value, not only in relieving pain, but also in facilitating the passage of the calculus. The application of moist heat externally is effective often in severe attacks, and the avoidance of morphin is desirable, as it in a measure hinders the onward progress of the calculus. In ureteral colic of the left side moist heat can be effectively employed by high enemas of water as hot as can be borne.

The flushing action of large quantities of water is an effective agent in the progress of the calculus and is probably the chief value of the mineral waters frequently advocated. There seems little reason to believe that any solvent action is obtained from the remedies often advanced for this purpose.

In some cases they have a decided influence in preventing the formation of crystalline debris, but it is difficult to say how much of this is the result of their diluent properties. It is hardly reasonable to expect that agents which do not dissolve a calculus when they are concentrated in a test-tube will produce such an action in the dilute form in which they must of necessity pass through the kidney.

The formation of fresh precipitates apparently can be prevented by largely diluting the urine and changing its reaction. For this reason, the natural alkaline waters are valuable when the fresh urine has an acid reaction. When phosphatic salts predominate the best diluent is buttermilk, which contains lactic acid. Although its administration has never been shown to dissolve even a small calculus, its employment has prevented the formation of vesical calculi in cases in which repeated lithotrites had failed. Diluents seem valuable in proportion to the amount absorbed rather than to any chemical constituent. Urotropin (hexamethylenamin) is valuable as a urinary antiseptic in cases of mild infection, but should not be depended on to replace operation when grave infection and hyperpyrexia are present.

In calculus in the juxta-vesical portion of the ureter the passage of the stone can be facilitated by gentle rectal or vaginal massage, while calculi impacted in the vesical orifice of the ureter can frequently be removed by manipulations through the cystoscope.

Instrumental intraureteral interventions in ureteral calculus are, however, not unaccompanied by danger, since the ureter is frequently weakened by the presence of the calculus and has been perforated in some cases. Unless the calculus is large and has become

impacted in the wall of the bladder, it is much safer to allow it to pass by natural methods. In the female calculi can readily be reached through the vault of the vagina, but the discussion of operative procedures is foreign to the purpose of this paper.

CONCLUSIONS

The value and applicability of the expectant method of treatment in small ureteral calculi have been demonstrated by the passage and recovery of calculi in thirty-one cases, as compared with fifteen in which operation has been deemed necessary.

By expectant treatment is meant the employment of known medical measures under careful medical supervision, with frequent analyses of the urine.

Such treatment is based on the data derived from a careful Roentgen-ray examination with a study of the symptoms and signs as shown by other methods of clinical examination.

The results obtained by this course of treatment show that in 50 per cent. of the cases of urinary lithiasis presenting marked symptoms natural forces are capable of expelling the calculus.

With the accurate knowledge obtainable by known clinical methods of diagnosis this procedure is not only rational and justified, but should be employed rather than resort to the dangers of ureterolithotomy.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. LEONARD AND GARCEAU

DR. H. H. YOUNG, Baltimore: I think that Dr. Leonard is entirely correct in taking a conservative view in regard to certain small calculi of the ureter. During the course of such conservative treatment I advise careful observation and the use of the cystoscope to note the action of the kidneys in order to be sure that the outflow of urine had not become blocked. It is also necessary to compare the size of the ureteral orifice with that of the calculus shown by the x -ray, and if it is manifest that the size of the orifice is too small for the passage of the calculus, the patient should not be subjected to the unnecessary delay entailed by Dr. Leonard's procedure. In preference to a long wait I suggest an attempt at some intravesical cystoscopic operation. Casper and others have caused the passage of a calculus by injecting glycerin or olive oil above it. I have tried that successfully in one case. It may be possible to dilate the ureter by the passage of catheters of increasing size. I have had two cases in which this has been done successfully. Calculi fastened at the lower end of the ureter may be teased out with a ureteral catheter. In one of my cases a calculus impacted in the lower end of the ureter was dislodged and emptied into the bladder with a little manipulation of a ureteral catheter. I have now under observation a case in which a very small calculus, located only half an inch above the orifice of the ureter, has been present for a long time and the passage of ureteral catheters even of a large size has not secured the passage of the calculus. In order to facilitate the passage of this calculus I have devised a little ureteral dilator, constructed much like a urethral dilator, with an external attachment, whereby it is possible to enlarge it after introducing it into the ureter. Having been passed above the site of the calculus it is gradually withdrawn, its dilated portion stretching the ureter. The spring of the instrument is strong and firm. I used it only a day or two ago and can not say whether the procedure has been successful. It would seem to be applicable in cases in which the lower orifice of the ureter is too small to allow the passage of calculus. I do not recommend a long persistence in this non-operative treatment. I have had six cases of calculi removed from the pelvic portion of the ureter in men by the extraperitoneal iliac operation without a single death and in all cases there has been primary union of the ureter and no leakage of urine through the wound. I have two cases in which the calculi have been removed through the bladder

by means of incision of the lower orifice and extraction through the bladder. It would seem, therefore, that the rational treatment is not to wait too long, especially if the patient is suffering. We must also keep in mind the possibility of injury to the structure of the kidney on the affected side. The intraureteral operation, if feasible, would seem to be a desirable thing to try. I have tried intrapelvic irrigations in several cases of pyelitis, but with very unsatisfactory results. In cases of hematuria I have found the intrapelvic injection of adrenalin of great value, and have now had three cases of persistent hematuria, one of ten years' duration, cured by the intrapelvic injection of adrenalin.

DR. C. S. LEONARD, Philadelphia: I purposely did not take up the operative side of ureteral calculus. I simply wanted to show the result of the expectant treatment in certain cases in contrast to certain other cases necessitating operation. I spoke of intraureteral operation being dangerous on account of the softness of the ureter. I have had the misfortune to see three cases in which an attempt to pass the ureteral catheter caused perforation into the peritoneum. In another case in which the stone had been forced to the wall of the bladder it finally ulcerated through the wall and escaped in that way. The measurement of the stone as compared with the orifice of the ureter as seen with the cystoscope seems to me rather a delicate matter, because we can not tell from the x -ray exactly what the size of the calculus is, nor can we see in the refracting cystoscope and through its magnifying lenses the exact size of the ureter. I think that Nature can dilate the orifice of the ureter with as little danger to the patient as the surgeon can with any instrument; and, although this instrument may be serviceable in many cases in which the stone becomes impacted I think it is safer to leave the matter to Nature when that is possible.

DR. EDGAR GARCEAU, Boston: I take the view that it is unwise to wait too long in cases of impacted calculus. There are so many things that may happen if a stone is left in the ureter that it seems to me unwise to court danger by waiting. Hydronephrosis may develop, infection may ensue, and a very serious condition result in the kidney above. Just how long one should wait is, of course, a question to be decided by the sizes and symptoms in each individual case.

THE ACUTE FORMS OF ABDOMINAL TUBERCULOSIS*

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There has been a general impression for many years in the minds of the profession that tuberculosis of the various abdominal structures was a disease which almost invariably began in a slow insidious manner.

The fact that the lesions caused by the tubercle bacillus are often accompanied by such acute symptoms as to simulate in every detail the well-recognized acute forms of disease of the various abdominal viscera is not as well known as it deserves to be.

The two structures which are most apt to be thus involved are the appendix and the peritoneum, and the present paper will be limited to these two. Mayo,¹ however, has called attention to such an acute onset in cases of tuberculosis of the Fallopian tube, and in a previous paper² I have emphasized the relative frequency with which a mixed gonococcus and tuberculous infection of the epididymis will be accompanied by very acute symptoms. My interest in the subject was reawakened by an experience during the summer of 1907.

* Read at the International Congress for Tuberculosis (Surgical Section), Washington, Oct. 2, 1908.

1. Mayo, W. J.: Tuberculosis in the Abdomen, *THE JOURNAL*, A. M. A., April 15, 1905.

2. Eisendrath: *Chicago Med. Recorder*, 1903.

KOCHER'S CASE

Patient.—A boy of 14, while traveling abroad and apparently enjoying the best of health, was taken suddenly ill.

Present Illness.—He began to have vague abdominal pains accompanied by persistently high temperature (to 105 F.) of a continuous type, with symptoms of marked prostration. On the third day there was tenderness over the right iliac region and a distinct mass to be palpated.

Diagnosis.—The diagnosis of acute appendicitis was made by the local physician and confirmed by Prof. Theodore Kocher of Berne, to whom I wish to express my thanks for permission to include the case in the present paper.

Operation.—The abdomen was opened by Professor Kocher on the fifth day of the illness and a large mass exposed in the ileocecal angle, which was at first thought to be an acutely inflamed appendix wrapped in omentum. Further examination showed, however, that this mass was composed of four or five greatly enlarged ileocecal lymph nodes, each about the size of a hazelnut. One of these nodes was excised and showed on section all the evidences of an acute inflammation, but contained, in addition, a number of recent caseous foci. The remainder of the larger nodes were excised and the appendix carefully examined. It showed only acute catarrhal changes, but was removed. Microscopic examination of the lymph nodes and appendix confirmed the diagnosis of tuberculosis. The appendix showed several typical submucous tubercles and the nodes showed all the characteristic evidences of tuberculous infection.

Postoperative History.—The boy made a slow recovery, the most marked symptoms of the convalescence being great weakness, emaciation and anemia. During the past year the boy has gained greatly in weight and strength and seems to have made a complete recovery.

Professor Kocher expressed the opinion that the appendix has unquestionably been the atrium of infection and that the case had been one of tuberculous appendicitis due to the ingestion of butter containing tubercle bacilli. This patient had not taken milk in any form for several years, so that infection from this source could be excluded.

After reflecting on this case and looking over my own records and the literature of the subject for similar cases, I have thought it desirable to direct attention to these cases of acute onset of tuberculous appendicitis and peritonitis.

There are but few statistics available as to the frequency of primary tuberculous infection of the appendix. Fenwick and Dodwell³ found that the appendix was the only portion of the alimentary tract involved in seventeen of 2,000 autopsies on phthisical patients. Leseur,³ in 144 examples of tuberculous appendicitis observed at autopsies of phthisical patients, found no other lesion than that of the appendix in twelve. The opinion is rapidly gaining ground that primary tuberculous infection of the alimentary tract is not as infrequent a condition as was formerly thought.

The chief sources of infection are the ingestion of milk, butter and cheese from tuberculous cows. The danger from the meat of cattle and hogs is much less than that from milk and its products. That milk can act as a carrier of infection is a fact so generally accepted that it will be unnecessary to dwell on it here. It is, however, a matter of the greatest importance to be awake to the fact that butter is as potent a mode of conveying tubercle bacilli from animals to man. This has recently been the subject of an investigation by the United States Department of Agriculture. The position of those who hold for infection by ingestion seems much fortified by the findings of E. C. Schroeder and W. E.

Cotton of the experiment station service in Washington.⁴ These authors consider that "a very large amount of butter infected with tubercle bacilli is daily consumed by our people," and that this food is an ideal environment for the preservation of this bacterium. After ninety days these germs show only a doubtful reduction of pathogenic virulence. They tend to separate themselves from the milk by rising with the cream or precipitating with the sediment. Consequently these are the parts of milk which are most intensely infected. Butter probably contains them in discernible numbers, "thirteen times for every ten times they are sufficiently numerous in milk to be detected." These workers further declare that from 15 per cent. to 30 per cent. of the cows from which our cities draw their milk supply are affected by tuberculosis; that about one-fourth of the samples of sediment taken from the cream separators of public creameries throughout the country show tubercle bacilli; and that the frequency with which these bacilli occur in the sediment from milk is a fair measure of their frequency in cream, from which butter is made. "Measure for measure, infected butter is a greater tubercular danger than infected milk." Furthermore, because of the shield offered by butter against the germicidal action of sunlight, it tends ideally for their preservation, and tests show that in the ordinary salted butter of commerce the Koch bacillus "may live and retain virulence practically four and a half months or longer."

In the majority of text-books brief reference is made to the fact that tuberculosis of the appendix and peritoneum may begin acutely. The case just described and the following ones to be reported certainly show that such an acute onset is a factor to be considered in the future when we are called on to diagnose the nature of an acute abdominal affection.

The French surgical journals have recently contained reports of some extremely instructive cases, of which I will first give a synopsis:

A. DEMOULIN'S CASE

The patient, a woman, aged 38, had her first attack of acute pain in the right iliac region in July, 1904. A second but more severe attack occurred in November, 1905. She was seen by Demoulin⁵ in January, 1906, during her third attack. There was great tenderness over McBurney's point and a hard mass to be felt. After subsidence of the acute symptoms operation on Feb. 15, 1906, revealed a mass of lymph nodes the size of a hen's egg in the ileocecal angle. Some of these were hard, others caseous. These nodes and the appendix were removed. The examination of the appendix was negative. The patient was well fourteen months after the operation.

The first French surgeon to call attention to the fact that a pericecal tuberculous adenitis can give rise to symptoms of acute appendicitis was Gerard-Marchant.⁶ He also emphasized the fact that a tuberculous appendicitis could exist without either microscopic or macroscopic evidence of its specific nature, the only evidence being the tuberculous ileocecal lymph nodes. This view of Gerard-Marchant has since been endorsed by other European surgeons, especially in France, and is in accordance with the experimental evidence furnished by Dobroklonsky⁷ in 1890. The latter showed conclusively that tubercle bacilli could pass through the healthy intestinal wall without any trace of their migration. This is analogous to what is observed in the tonsil.

4. Tubercle Bacilli in Butter, Rep. 127, Bureau of Animal Industry, Dept. Agric.

5. Bull. et mém. Soc. de chir. de Paris, May 15, 1907.

6. Bull. et mém. Soc. de chir. de Paris, Jan. 24, 1900.

7. Arch. de méd. exper. et d'anat. path., 1890, No. 2.

GERARD-MARCHANT'S CASE

A young Cuban had two classical attacks of what was diagnosed as acute appendicitis, with pain in the right iliac region, fever, vomiting and tympany. The fever and a tumor in the right iliac region persisted. At operation two caseous ileocecal nodes were found and these and the appendix were removed. The appendix showed no changes either to the naked eye or on microscopic examination.

LECENE'S CASE

In a case of Lecène (quoted by Petit⁸) there was a similar history, and three tuberculous nodes were found in the meso-appendix. The appendix showed submucous tubercles microscopically.

In all these cases the lymph nodes may be the principal lesion, although the appendix is the atrium of infection.

ROUTIER'S CASE

ROUTIER⁹ reports a case in which the appendix was large, red and adherent and the nodes were large and tuberculous.

SIREDEY'S CASE

In Siredey's¹⁰ case a girl of 14 who had a tuberculous father had always enjoyed good health. She had frequent attacks of colicky pain in the right iliac region, the diagnosis of chronic appendicitis being made by Jalaguier. At operation a straw-colored fluid escaped. There were many miliary tubercles scattered over the peritoneum. The appendix was removed, but showed only the changes characteristic of a chronic appendicitis. A large lymph node removed from the mesoappendix contained caseous foci.

Tuffier¹¹ has recently reported a case of Guibal and one of his own which are quite typical:

GUBIAL'S CASE

In Guibal's case a previously healthy child of 6 began suddenly to have severe abdominal pain accompanied by marked right-sided rigidity and tenderness, fever to 103 F. and vomiting. Appendicectomy was performed four weeks later during the interval. Ileocecal nodes, the size of a large nut, showing many caseous foci, were found and removed. The peritoneum and cecum were negative. The appendix showed no tuberculous changes.

TUFFIER'S CASE

In Tuffier's own case, a girl of 12 was operated on two months after a typical attack of acute appendicitis. The appendix showed a tuberculous folliculitis and there were several caseous ileocecal nodes, which were also removed.

A case similar to those just quoted occurred during the past summer in the Michael Reese Hospital service of my colleague, Dr. Louis A. Greensfelder, to whom I am indebted for permission to publish it:

GREENSFELDER'S CASE

Patient.—L. T., girl, aged 5, was admitted to the service of Dr. Greensfelder June 2, 1908. Her parents are both living and in good health. The patient is the only child; she is well nourished and had been apparently in the best of health prior to the onset of the present illness. She was taken ill suddenly the day preceding her admission with pains in the abdomen and left side of chest.

Examination.—This, on admission, showed a small area of consolidation in the upper lobe of the left lung. The abdomen was somewhat tympanitic, quite rigid and there was general tenderness on pressure, but this was more marked in the right iliac region.

Operation.—When the abdomen was opened a free straw-colored fluid escaped. The glands in the mesoappendix were greatly enlarged and caseous. The appendix was injected and

thickened. Appendicectomy was performed and removal of glands. No microscopic examination of the appendix was made. The patient recovered and was discharged from the hospital July 19, 1908.

The following cases of acute tuberculous peritonitis occurred in my service:

EISENDRATH'S CASES

CASE 1.—Encapsulated (subphrenic) tuberculous peritonitis with very acute onset simulating ordinary subphrenic abscess.

Patient.—V. de S., male, aged 48, was admitted on Aug. 24, 1906, to the medical service of Dr. J. L. Miller in the Cook County Hospital with the diagnosis of pneumonia. On account of the patient's inability to speak English well, the only history obtainable was that he had been perfectly well up to nine days before admission, when he began to have pain in the abdomen which varied greatly in intensity and was most marked around the umbilicus.

First Examination and Diagnosis.—The leucocyte count was 8,600, the abdomen distended and the temperature ranged between 100 F. and 104 F. The condition remained unchanged for ten days. Owing to the fact that the rigidity and tenderness was most marked in the right hypochondrium, a diagnosis of acute cholecystitis was made, and the patient was transferred to the surgical service of Dr. Charles Heywood.

First Operation.—The latter opened the abdomen and found the appendix and gall bladder normal. There were, however, many dense adhesions between the coils of intestine and the omentum was adherent to the abdominal wall. After this operation the temperature rose still higher (to 104.4 F.) and there was accompanying stupor, delirium and rapid respirations (to 44).

Second Examination.—In the absence of Dr. Heywood, I saw the patient on Sept. 6, 1906. There was marked stupor. Dulness extended upward from the liver to the fourth rib in the mammary line to the fifth rib in the midaxillary line and seventh rib in the scapular line. There was an absence of respiratory sounds over this area. When an exploring needle was inserted through the eighth interspace a foul flaky fluid was obtained.

Second Operation.—I resected the eighth right rib in the scapular line and found the pleural cavity empty. The diaphragm was sutured to the parietal wound and about twelve ounces of a slightly turbid fluid evacuated from the subphrenic space.

Postoperative History.—The patient made a slow recovery, the subphrenic wound continuing to discharge for several weeks. About eight weeks later evidence of marked ascites appeared, and the patient died about six months later.

Autopsy.—This showed a typical tuberculous peritonitis with effusion. The subphrenic region showed firm adhesions over the previously involved area.

CASE 2.—*Patient.*—A. L. W., aged 26, clerk, had always enjoyed good health. Family history negative.

Present Illness.—This began suddenly in February, 1904, with pain in right iliac region, but no fever. A physician who saw him at the time made a diagnosis of appendicitis. When I first saw the patient in June, 1904, there were evidences of an encapsulated collection of fluid in the right iliac region.

Operation.—Laparotomy revealed a walled-off collection of thin yellowish pus occupying the right half of the abdomen. The posterior wall of this abscess cavity was formed by agglutinated coils of intestines covered with tubercles and granulation tissue which showed evidences of tuberculosis microscopically. The patient recovered completely.

CASE 3.—Acute onset of tuberculous peritonitis with high continuous fever resembling typhoid.

Patient.—A woman, aged 35, had been ill five weeks when I first saw her. The illness had begun suddenly with mild abdominal pains and other vague symptoms like a typhoid. Her fever had been of the continuous type and ranged between 101 and 104 F. She had been given the routine typhoid treatment.

Examination.—This showed evidences of fluid, and laparotomy revealed a very advanced ulcerative caseous peritonitis. The patient died a few months later.

8. Dissertation de Paris, 1905.

9. Bull. et mém. Soc. de chir. de Paris, July 5, 1905.

10. Bull. et mém. Soc. de chir. de Paris, May 15, 1907.

11. Bull. et mém. Soc. de chir. de Paris, May 29, 1908.

An example of such an acute onset is shown in the recent report of a case by A. K. Stone:¹²

STONE'S CASE

Patient.—A woman, aged 22, whose mother had died of phthisis, was admitted to the Massachusetts General Hospital in February, 1907. Her illness had begun suddenly three days before admission with severe abdominal pain and vomiting. On the patient's admission the abdomen was found to contain free fluid, accompanied by rigidity and tenderness. The evidences of fluid disappeared under medical treatment.

Stone states that sudden onset is common in tuberculous peritonitis, being found in about one-quarter of all cases. The fluid both accumulates and disappears rapidly.

Osler refers briefly to the fact that tuberculous peritonitis may begin suddenly and be accompanied by continuous fever resembling that of typhoid fever. At present the absence of the Widal reaction, the leucopenia, and not infrequently the evidences of the presence of free fluid will serve to distinguish the process as a tuberculous one.

A case is reported by Michaux¹³ resembling my own of an acute onset of tuberculous peritonitis with symptoms pointing to a subphrenic abscess:

MICHAUX'S CASE

The onset was very sudden with great dyspnea, clinically resembling a pneumothorax. There was high temperature and edema over the right side of the abdomen and chest wall. An incision along the costal arch evacuated pus containing gas. There was temporary improvement as in my first case, but death occurred one month later. The autopsy showed a dry tuberculous peritonitis.

The most complete statistics on tuberculous appendicitis are those of Brunner³ based on fifty-one cases collected from the literature. It includes all published cases in which appendectomy had been performed. To this number I can now add seven. Of these fifty-eight patients over one-fourth, that is, sixteen, had symptoms which in every detail resembled an attack of acute appendicitis. The direct operative mortality in this series of fifty-eight cases has been very small. It is almost impossible to state what the final results have been because so few of the cases have been followed for a sufficient length of time to speak of a complete recovery, and in many of the reports the patients suffered from tuberculous lesions elsewhere which ultimately resulted fatally.

If, however, in such cases as those of the French surgeons just quoted and Kocher's and Greensfelder's, the lesion is operated on early enough and the appendix and glands removed, the prognosis should be very favorable. That the appendix in many of the cases showed no tuberculous changes does not militate against such a specific infection. As stated above, the tubercle bacilli can pass through the walls of the appendix without leaving any trace of their passage. The bacilli can then infect the ileocecal lymph nodes or be the starting point of a tuberculous peritonitis.

CONCLUSIONS

My conclusions are the following:

1. A primary tuberculous appendicitis is not as rare an affection as was formerly thought.
2. Such an infection can be followed by secondary involvement of the ileocecal lymph nodes which is out of all proportion to the pathologic changes in the case.

3. In the majority of cases there are evidences of tuberculous foci in the appendix, but secondary lymph caseous nodes may be found without visible macroscopic or microscopic tuberculous changes.

4. Butter, milk and cheese from tuberculous cows are the chief sources of infection in primary intestinal tuberculosis.

5. In a fair proportion (27 per cent.) of the twenty-nine published cases of tuberculous appendicitis the clinical picture resembled an acute non-tuberculous appendicitis. No statistics are available to estimate the proportion of cases of tuberculous peritonitis which begin acutely, but it is larger than is usually thought.

6. Through early diagnosis and radical removal of the tuberculous appendix and infected lymph nodes (as far as practicable) complete and permanent recovery can occur. Some of the cases of ileocecal tuberculosis and of tuberculous peritonitis may thus be avoided through removal of the probable starting point.

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A METHOD FOR INCREASING THE DIAGNOSTIC VALUE OF SPUTUM REPORTS *

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The methods usually employed in recording the examination of a specimen of sputum give somewhat meager information regarding the character of the specimen submitted.

A more careful selection of the terms used in the description of the macroscopic appearance of the specimen and of the various elements found on microscopic examination would in many cases give valuable hints as to the character and source of the sputum examined.

Most text-books, under the heading "Macroscopic Appearance," follow Biermer's¹ classification of sputum as "mucoid, mucopurulent, purulent, and bloody." They usually describe also the subvarieties which he clearly distinguished but without giving them the definite names which he employed. For instance, many authors call attention to the fact that there are two types of mucopurulent sputum—one of which is homogeneous and the other not. Biermer reserves the name "mucopurulent" especially for the first type. It is homogeneous, tenacious, more or less opaque and usually yellow. It differs from strictly purulent sputum, which is liquid, in being tenacious. The second type, which he designates as "purulo-mucoid," is not homogeneous. The yellowish or whitish purulent matter forms lumps or flakes imbedded in more or less transparent, tenacious mucoid material. Klopstock and Kowarsky² use the same terms in describing these varieties.

Heyman³ has divided the moist droplets disseminated by coughing consumptives into three classes in accordance with their microscopic appearance: 1, Droplets of a type containing a central kernel of fibrin and leucocytes surrounded by epithelium and mucus; 2, containing a kernel rich in leucocytes with a scanty mucoid layer; 3, containing only epithelium and mucus.

* From the laboratory of the Adirondack Cottage Sanitarium, Trudeau, N. Y.

1. Biermer: *Die Lehre von Auswurf, Würzburg, 1855.*
2. Klopstock and Kowarsky: *A Manual of Clinical Chemistry, Microscopy and Bacteriology*, translated by T. Wright, New York, The Rebman Company, 1905. See also Lawson Brown: *Sputum Examination in Pulmonary Tuberculosis*, Montreal Med. Jour., October, 1901.

3. Heyman: *Ztsch. f. Hyg. u. Infektionskr.*, 1899, xxx, 139; xxxviii, 2. Ziesche: *Ztschr. f. Hyg. u. Infektionskr.*, 1907, lvi, 57.

12. Boston Med. and Surg. Jour., May, 1908.
13. Bull. et mém. Soc. de chir. de Paris, 97.

Droplets of Types 1 and 3, "mouth droplets," are usually free from tubercle bacilli but often contain large numbers of secondary organisms. Droplets of Type 2, "bronchial droplets," often contain large numbers of tubercle bacilli. They are practically free from secondary organisms and contain no mouth epithelium.

Using suggestions derived from the sources just mentioned, I make the following notes in recording the examination of a specimen of sputum for tubercle bacilli:

Under "macroscopic appearance" the specimen is described as watery, mucoid, muco-purulent, purulo-mucoid, purulent or bloody. If one of the other varieties is simply blood-streaked the fact is noted but the specimen is not called bloody unless it consists of pure blood.

In the microscopic examination the presence or absence of tubercle bacilli is noted. Their number is estimated according to the Gaffky schema and their arrangement is recorded if desired.

Under the heading "cells", particular attention is given to squamous epithelial cells and to pus cells (polynuclears). If the former are present in large numbers so that they are prominent elements in the picture they are given precedence in the statement of cells present. On the other hand, if the pus cells are numerous they are recorded first. The presence of small round cells, alveolar cells, and, in appropriately stained

edly tuberculous. Mixed infection can not be diagnosed from the examination of a stained specimen of sputum alone. This is true even of specimens of Type 4, which in many cases are undoubtedly derived from the lungs. These are, however, the specimens that should be selected if it is desired to obtain evidence regarding the presence of mixed infection by means of cultures from washed sputum. The cultivation of tubercle bacilli in pure culture from washed sputum is also more likely to be successful if specimens of this type are selected.

A certain proportion of the specimens received did not belong to any of the types mentioned but were mixed specimens. Sputum from the lungs may readily become contaminated with that from the upper air passages on its way out; but in the majority of cases it is possible, as in the case of the droplets, to determine whether the specimen is primarily of the "bronchial" type or derived from the throat and mouth. Caseous masses containing enormous numbers of tubercle bacilli, while occasionally seen, are certainly not frequent.

Mucopurulent, homogeneous, tenacious sputum derived from the throat or nose may exactly resemble sputum of the "bronchial" type (Type 4) macroscopically, but under the microscope the presence of many squamous epithelial cells and numerous micro-organisms would suggest an origin from the upper air passages. Squamous epithelial cells, covered with micro-

TABLE SHOWING CHARACTER OF SPECIMENS OF SPUTUM IN A SERIES OF FIVE HUNDRED AND FORTY-ONE CASES *

Type.	Macroscopic appearance.	Cells predominating.	Secondary organisms.	T. B. +	T. B. —	Total.	% +	% —
1.....	Watery or mucoid.....	Squamous epithelial cells.....	Many.....	2	92	94	2.1	97.9
2.....	Purulomucoid.....	Squamous epithelial cells.....	Many.....	13	134	147	8.8	91.2
3.....	Purulomucoid.....	Pus cells.....	Few.....	54	37	91	59.3	40.7
4.....	Mucopurulent.....	Pus cells.....	Few.....	110	34	144	76.3	23.7
		Other combinations.....		32	33	65	49.2	50.8
Totals.....				211	330	541	39	61

* The headings, "T. B. +," "T. B. —," "% +," "% —," indicate, respectively, the presence and absence of tubercle bacilli.

specimens, of eosinophiles, may also be mentioned. Mononuclear cells rarely form the majority of the elements present.

In regard to secondary organisms, a note is first made stating whether they are few or many. More details as to the varieties present may then be added.

The table shows that in a series of 541 cases at the Adirondack Cottage Sanitarium, Trudeau, N. Y., where I was formerly assistant physician, there was a natural grouping into four main classes.

It will be noted that tubercle bacilli were found but rarely in specimens of Types 1 and 2 (2.1 per cent. and 8.8 per cent.), more frequently in specimens of Type 3 (59.3 per cent.), and especially often in specimens of Type 4 (76.3 per cent.). If specimens of Type 4 can be obtained they are, therefore, of much more diagnostic value than those of Types 1 or 2, many of which are merely mouth specimens. It is, however, worth while to examine the latter, if no others can be obtained, as tubercle bacilli are occasionally found in them.

A negative result from a series of specimens of Type 4 would be of more value in excluding the presence of tuberculosis than the same report from a much larger series of Types 1 or 2.

Great numbers of secondary organisms are always found in sputum of Types 1 and 2. They may be streptococci, diplococci, staphylococci or other mouth organisms. Many of them are harmless saprophytes and their presence should not be considered as suggesting secondary or mixed infection even if the individual is undoubt-

organisms as they are in many cases, are not hard to distinguish from alveolar cells.

Sputum of Type 4 is probably replaced by Type 3 as the patient's health improves and the character of the bronchitis changes, a point which might be determined by the examination of a series of specimens.

The patient often can tell whether a specimen is coughed up from deep down in the lungs or is simply secured by efforts at clearing the throat. A note regarding this point added to the data already mentioned would further increase the value of the report.

CONCLUSIONS

1. When a record is made of the macroscopic appearance of a specimen of sputum, together with notes as to the predominating cells seen on microscopic examination, and a statement is made whether secondary organisms are few or many, it is possible to determine, from the report, with some degree of probability, whether a specimen was derived mainly from the lungs or from the upper respiratory tract.

2. A certain type of specimen, the "bronchial type" (Type 4), should be secured if possible when it is desired to determine the presence of tubercle bacilli or of organisms causing mixed infection. The selection of this same type for use in securing pure cultures of secondary organisms or of tubercle bacilli will save time and trouble.

3. Tubercle bacilli are occasionally found in specimens of the "mouth droplet" type (Types 1 and 2),

and these should be examined if no other can be obtained. Such specimens are usually in large part derived from the mouth or throat. No inferences as to the presence of mixed infection should be drawn from the examination of such specimens.

4. The patient should state whether the specimen was obtained by coughing or by clearing the throat.

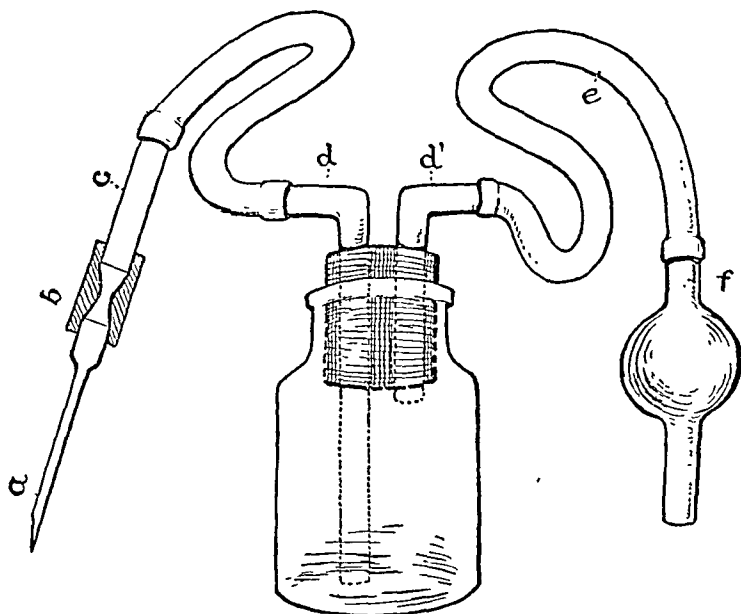
588 Madison Avenue.

Clinical Notes

A NEW AND SIMPLE DEVICE FOR EXPLORATORY ASPIRATION

HENRY SEWALL, PH.D., M.D.
DENVER

There are few practitioners who have not been annoyed at times with the inefficiency of the apparatus employed in exploratory aspiration of fluid accumulations. The needle is not of the desired size, or the piston does not fit the syringe tightly, or the glass barrel itself may break at the critical moment.



An improved device for exploratory aspiration.

The simple device here figured suggested itself to me while witnessing an episode of instrumental treason; it seems to answer its purpose perfectly and relieves us of the tyranny of the exploratory syringe.¹ In its use the muscles of the operator's mouth serve as the piston and the tip of his tongue as the valve of the syringe.

The construction of the apparatus should at once be clear from the diagram. The hollow needle *a* may be of any desired size. It is inserted in the piece of rubber tubing *b*. This tubing should have a narrow lumen and be thick-walled and extensible; an excellent material is the heavy piece of tubing provided for needle connection by certain antitoxin purveyors. The piece of glass tubing *c* allows of early recognition of the fluid aspirated. The bent tubes *d*, *d'* may be of glass, but are preferably made of metal, nickel-plated. They have a diameter of about 3 mm. and enter a bottle having a capacity of about one ounce through a perforated rubber stopper. A rather stiff rubber tube *e* continues the system and has inserted in its free end a glass tube *f*, in which is blown a small bulb. The free portion of

the glass tube should be cut off about one-half inch from the bulb; it is then easy to stuff the latter with cotton, inserting it through the tube with a knitting needle, and the cotton may be again picked out with fine forceps. The cotton serves as a stopper for germs in one direction and saliva in the other. In my own instrument the length *d'* to *f* is about twenty inches and *b* to *d* six inches.

The apparatus is sterilized in the ordinary way, preferably after removing the glass piece *f*. When the needle has been inserted in the cavity to be explored the open end of *f* is held between the lips of the operator and suction is made, the tip of the tongue closing the opening of the tube between the efforts of aspiration. The apparatus possesses the following advantages:

1. It is extremely simple. It may be constructed by any one possessing the necessary materials and moderate skill;¹ the glass bulb in *f* is a luxury.

2. It is easy to estimate the degree of suction force; this may be increased to any safe limit.

3. While with an ordinary syringe the needle must be removed from the barrel in case a single withdrawal of the piston has given a negative result and it is desired to try again; in the instrument here described any number of aspirations may be made with or without change in the position of the needle.

4. A needle of practically any size may be fitted to the tube *b*.

5. The bottle may be stoppered and its fluid contents transported for examination.

6. The needle can be held more steadily during aspiration by this method than when it is rigidly connected with a syringe.

In conclusion, it may be mentioned that when in attempting to aspirate a large quantity of fluid, with the apparatus usually employed for that purpose, the syringe proves defective, the air may be exhausted from the bottle by similar mouth suction, though when the glass reservoir is large its depletion is begun by inhaling its air into the lungs, the simple mouth suction being brought into play when the resistance is already considerable.

1360 Vine Street.

A SUGGESTION FOR THE TREATMENT OF OPHTHALMIA NEONATORUM

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PHILADELPHIA

In treating ophthalmia neonatorum it frequently happens that the physician himself can not see the patient oftener than once a day, and must rely on the mother to wash out the eyes, and between his visits to instill whatever drops can be entrusted to her. In cases in which both eyes are infected we often find that one eye does well but the other becomes ulcerous.

The chief cause of this condition is that one eye is well washed out and the other is not. At each treatment of the baby it is easy to open the first eye approached, but after the child is hurt and starts to cry, it strongly shuts both eyes and rolls in the lids. Then even the physician finds it difficult to open the lids of the second eye wide enough to make the applications efficiently.

By habit a physician is likely to begin on the right eye every time, and that eye, for the reason given above,

1. The apparatus can be obtained from the Durbin Surgical Instrument Co., Denver.

may get more thorough treatment than the left eye, even from him. In a room a baby is always left lying in its crib in the same position, picked up in the same manner, and the mother or nurse is likely to begin always with the same eye in the treatment, to the detriment of the other eye.

The remedy is, obviously, to instruct the woman to begin carefully with the right eye, for instance, at one treatment and the left eye at the next treatment. When an ulcer is present on one eye she should favor that eye by beginning with it.

In opening a baby's eyes a woman is likely to place the end of her finger too far from the lid margin, or to try to open the lids while they are wet and slippery externally; or a second woman attempts to help, and stretches the lids more tightly shut by keeping too far from the edge.

What is said here of ophthalmia neonatorum holds true also, of course, for infectious ophthalmias in all children up to an age when the two eyes can readily be opened equally.

2228 South Broad Street.

A SIMPLE METHOD FOR REMARKING THE SQUARES IN THE COUNTING-CHAMBER OF A ZEISS HEMATOCYTOMETER.

PATRICK MOLONEY, L.R.C.P., L.R.C.S.
CAPE COLONY, SOUTH AFRICA

The inexperienced blood counter sometimes has difficulty in cleaning the slide and counting-chamber of the Zeiss hematocytometer and often resorts to the use of alcohol and ether with disastrous results. These agents remove the color from the demarcating lines of the various squares and the instrument is rendered useless. Some laboratory authorities have not been able to suggest anything better than rubbing the cell with a soft lead pencil and polishing with a soft linen cloth, or they advise the return of the slide to the maker for the purpose of remarking. Having noticed that the glass beads in the mixing-chamber had a strong affinity for Toison's fluid,¹ I determined to rub a piece of gauze moistened in this solution gently over the counting-chamber. The result was excellent, the boundaries of the squares being clearly defined, and, moreover, they retain the stain far better than that given by the application of the lead pencil.

A SIMPLE METHOD OF BLOOD TRANSFUSION WITHOUT CANULA

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The operation of direct transfusion of blood has, through the work of Carrel, Crile and others, assumed the importance of a valuable therapeutic agent during recent years. Its general applicability has, however, been considerably restricted owing to its difficult tech-

nic. The suture of the vessels requires a marked degree of skill, and even in the hands of men more or less experienced in doing it often fails to give a free flow of blood. The use of the canula, while not quite so difficult, is still an operation that will frequently fail in the hands of any surgeon who has not had an extensive experience in using it in animals. It has the further disadvantage of very materially lessening the caliber of the vessel where it is cuffed back over the canula. The procedure described below is almost as simple as a saline intravenous infusion and delivers into the vein a full flow of blood, which, however, can be easily controlled if it be too great.

The artery and vein are dissected out, temporarily clamped and divided in the usual manner and with the usual care in securing the small branches. The adventitia is removed from each, but a small coil of it is left curled up on the outside of the artery about one and a half inches from the cut proximal end. Three guiding sutures of fine silk are then passed by means of a fine needle—an ordinary intestinal needle and zero silk are sufficiently fine—at intervals of 120 degrees in the circumference of the cut end of the vein. The end of the artery is greased with melted, sterilized petrolatum. The mouth of the vein is drawn open with the sutures and the artery passed directly into it for a distance of one inch. One of the guiding sutures is then passed through the rolled-up adventitia on the artery to hold the two vessels in contact, and the greater or less amount of surplus circumference of the vein is clamped or sutured so as simply to approximate the artery but not to constrict it. The obstructing clamps are removed and the blood current allowed to flow. This procedure has been tried with entire success on dogs in the Cornell Physiological Laboratory, and there is no tendency whatever to clotting of the blood. It has been used but once on the human subject (in a case of severe anemia which I saw with Dr. Freeman of Orange, N. J.), and was in that case equally successful. In this instance a small tributary vein was dissected up for an inch and left attached to the receiving vein about one inch from the anastomosis in order to determine the actual flow through the latter. When the vein proximal to this tributary was compressed and the small clamp removed from the latter a full-sized flow of blood would be thrown through it in arterial pulsations for a distance of two or three feet. Digital pressure on the artery controlled accurately the rapidity of the flow. In this way it was possible to continue the flow for fifty minutes before the donor began to show sufficient loss of blood to indicate the necessity of stopping it. No diminution of the stream took place at the end of that time except such as was incident to the following blood pressure. There was no back leakage around the artery. After about fifteen minutes the two vessels had become thoroughly glued together, so that even the removal of the vein-constricting clamp was possible without back leakage.

There is no difficulty experienced in inserting the artery into the vein, because the wall of the former is sufficiently rigid to make it easily enter for an inch or more without kinking. For ease of manipulation, three or four inches of each vessel are needed. Whether the flow of blood could be stopped completely by pressure on the artery for a considerable time, without clotting at the end of the inserted artery, it is impossible to say with our present experience. With care,

1. Tolson's mixture, a solution for diluting the blood in counting the red corpuscles, consists of 8 gm. of sodium sulphate, 1 gm. of sodium chlorid, 30 c.c. of glycerin, 0.025 Gm. of methyl-violet, and 160 c.c. of distilled water.

however, complete stoppage is at no time necessary, as the flow can be thoroughly controlled, if indications arise, without actually stopping it. In case, however, for any reason a clot should form it is only the work of a minute or two to separate the vessels, remove the clot and make a re-anastomosis, and this is done without sacrificing any of the vessel length. The danger of a clot washing away in the blood stream to form an embolus is neither greater nor less than in any other method. If the cut end is coated with petrolatum no fibrin threads seem to form about it. A further improvement may be possible by simply placing the artery end in a lateral slit in the vein wall, after tying the vein distally, but no opportunity of doing this has yet been offered on the human subject. On dogs it is easy of performance, and in these animals the artery is far more flexible than in man.

NOTE: All the dogs used in the experiment were fully anesthetized with ether.
50 East Fifty-Third Street.

Therapeutics

COLDS

(Continued from page 213)

While we now so frequently and constantly inveigh against the use of coal-tar products because they have been too much used by the profession in prolonged acute disease, and by the laity in repetitions of acute pain, it should not be forgotten that two or three doses of a coal-tar product in a condition like an acute cold is of great advantage, not only in reducing the temperature, relieving the tensity of the circulation, dilating the peripheral blood vessels, and causing sweating, but also as an analgesic. A combination such as either of the following is efficient in shortening the first stage of acute cold and perhaps aiding in preventing its continuance.

R.

Acetphenetidini

Phenylis salicylatis

Caffeinae citratae

gm.

1|

1|

15

or

aa, gr. xv

gr. iiss

M. et fac chartulas, 3.
Sig.: One powder every three hours.

Or:

R.

Morphinae sulphatis

Acetphenetidini

Phenylis salicylatis

gm.

01

50

50

gr. 1/6

or

aa, gr. viiss

M. et fac chartulam, 1.
Sig.: Take at once.

As Dover's powder often causes some nausea, any combination of the desired dose of morphin with an acetanilid combination as the compound acetanilid powder, in dose deemed efficient, will effect the object desired as well as will Dover's powder.

The action of the nitrites in dilating the peripheral blood vessels and promoting sweating, when other methods are also used to cause that condition, is satisfactory. How well the sweet spirit of niter acts as a diaphoretic depends on how warm the patient is kept and how much hot water he drinks.

While we advise the drinking of hot water to promote perspiration after hot baths, etc., it is not advisable to have the patient drink much water if sweating is not to be promoted, as it fills up the blood vessels and increases the local congestions. Hence, if it is

deemed best to dilate the blood vessels and relieve congestion with aconite or by purging and not use any method to cause sweating, the amount of liquids ingested should be kept low during this stage of the cold.

The administration of aconite in small doses frequently repeated is still used by some physicians as the best treatment in the first stage of a cold, but not nearly so frequently as it used to be used, at least not alone. In the combination of a "rhinitis" tablet, which generally contains several ingredients, aconite or aconitin is often administered by the profession, and often taken by the laity without such advice. The activity of the rhinitis tablet is due to its aconite and to its atropin, and, perhaps, slightly to the small amount of morphin that it contains. A patient who is put thoroughly under the influence of aconite to abort his cold will subsequently have more prostration than with any of the above advised methods of treatment.

In any congestion of the upper air tract, throat, or nose it is certainly advisable to unload the alimentary canal, and with the method that will produce the least general discomfort and act the quickest. The cathartic selected should depend upon the time of day at which the patient is first seen. If during the daytime, a saline cathartic should ordinarily be selected; if at night, calomel is best in the dose deemed sufficient, generally perhaps best combined with bicarbonate of soda, as:

R.

Hydrargyri chloridi mitis

Sodii bicarbonatis

gm.

20

50

or

gr. iii

gr. viiss

M. et fac chartulam, 1.
Sig.: To be taken at once.

Or one or two grains of calomel may be given with an aloin, strychnin and belladonna tablet at bedtime. If the patient has a tendency to constipation it is advisable to give a saline, as a seidlitz powder or citrate of magnesium, or some cathartic water, in the morning.

It is often advised to give calomel in small doses, as perhaps 1/10 of a grain, every half hour until one grain has been taken, aiming perhaps at the old antiphlogistic (prevention of inflammation) theory. This seems hardly advisable except as it may keep the patient interested and busy, as what is needed is a calomel movement and depletion, and not a troublesome diarrhea, which often occurs when calomel is thus administered. Also, patients susceptible to calomel may be salivated by small doses when they are not affected by a single large dose.

The abortive treatment of colds with so-called rhinitis tablets, while perhaps the best treatment when the patient must be exposed to further chilling or more dust and must keep at his occupation, seems theoretically inadvisable in the first stage of nose and throat inflammation. The main action of these tablets is the atropin action, unless the patient is somewhat prostrated by the aconite or aconitin that they contain, hence the drying up of the mucous secretions of the congested nose and throat by atropin should theoretically tend to prolong the first stage and perhaps thus prolong the second stage, as the free exudate from the inflamed mucous membrane is Nature's best method of depletion of these congested areas. Therefore, a patient housed and willing to give from ten to fifteen hours to the best abortive treatment of an acute cold should not receive rhinitis tablets, while a patient who must attend to his business may take these tablets, but ordinarily not for more than from twenty-four to forty-eight hours. A good rhinitis combination is as follows:

R.	gm.	
Aconitinæ	00003	gr. 1/2000
Atropinæ sulphatis	00015 or	gr. 1/400
Strychninæ sulphatis	0006	gr. 1/100
Morphinæ sulphatis	002	gr. 1/30

M. et fac tabletam, 1.

The best method of administration of the above tablet is one every hour for three doses, and then one every three hours. From ten to fifteen tablets may be given a patient for such use.

If aconite is to do any good in aborting an acute cold it must do it in from twenty-four to thirty-six hours; consequently it is inadvisable to cause any depressing aconite effect after that length of time.

The local abortive treatment of colds is by sprays, inhalants and gargles. The action of atropin or morphin (taken internally) on the mucous membranes of the nostrils and throat has already been referred to. Suprarenal extract in various dilutions has been used for the object of contracting the mucous membrane of the nostrils and throat. Very weak solutions may be so used, but any intense action is followed by a subsequent congestion. However, in the intense congestion of the mucous membrane of the nostrils, with obstruction, that occurs so frequently in hay fever, suprarenal extract used locally gives great relief. The most lasting relief, however, probably comes from a suprarenal ointment, of which a small portion is placed in the nostril. Watery sprays should not be used in the nostrils and the patient then subjected to dust or outdoor air, unless the weather is mild. Protection can be given to nostrils which have been cleansed with watery sprays by oil sprays, or the nostrils may be plugged, temporarily, with cotton.

During this stage menthol inhalants in various combinations are often of value in primarily shrinking the membrane of the nostrils and relieving the obstruction, and, secondarily, in perhaps stimulating a secretion which relieves the deeper congestion. A good solution for such inhalation is as follows:

R.	gm. or c.c.	
Mentholis	15|	
Camphoræ	15|	āā, 3ss
Eucalyptolis	15|	or
Olei pini silvestris	15|	āā, fl. 3ss

M. et sig.: For use in a nasal inhaler.

The above solution should not be used in an atomizer.

SECOND STAGE

If a cold is not aborted by any of the above methods, the mucous drippings or secretions from the nostrils become less, a purulent secretion begins, then more or less mucopus, and finally the usual catarrh of the nasal passages and nasopharynx occurs. If bronchitis is present its second stage partakes of the same characteristics as the coryza.

It is certainly good judgment, at least twice, and perhaps better three times a day, for the patient to cleanse his nostrils with watery salines or alkaline solutions. He should also use these solutions so as to cleanse the nasopharynx either by snuffing the liquid back through the nostrils or by any manner of gargling as will cleanse this cavity. Mild oil sprays may be used subsequently to prevent the membrane from becoming irritated after these washings. Careless nasal douching should not be done lest liquid or infection be forced in the Eustachian tubes, but properly done such cleansings tend to prevent frontal sinus suppurations, plugging and blocking of the Eustachian tubes and conse-

quent rarefaction in the middle ear and subsequent congestion, and also tend to prevent the catarrh becoming more or less chronic. Neglected catarrhs of the nose and throat tend to hypersecretion of the glandular tissues in these regions and hypertrophied mucous membrane, both of which cause abnormal secretions which will not inhibit the growth of the bacteria. In other words, such catarrhal patients are more prone to recurrence of colds and to the development of tuberculosis and pneumonia.

This second stage of nasal or throat cold is just as much benefited by the action of ammonium chlorid as is the second stage of bronchitis. For this purpose it may be administered as follows:

R.	gm. or c.c.	
Ammonii chloridi	5|	3iss
Syrupi ipecacuanhæ	5|	or fl. 3iss
Syrupi acidi citrici	25|	fl. 3i
Aquæ, ad	100	ad, fl. 3iv

M. et sig.: A teaspoonful, in water, every two hours.

This prescription presupposes there is no cough. If there is a troublesome cough, a cough frequent, without the necessity of expectoration, i. e., a non-productive cough, codeinæ sulphas should be added to the prescription to the amount of 0.20 gram (3 grains), i. e., 0.01 gram (1/6 grain) at a dose.

SUBACUTE STAGE

An ordinary cold should tend rapidly to recovery whatever the treatment. Purulent discharges in a few days should become mucopurulent and then mucous. The object of the above treatments is either to prevent the purulent discharge from developing at all, or to shorten it and hasten recovery. If in spite of treatment or from lack of treatment a mucopurulent discharge persists for some little time from either the nostrils, throat, or from a bronchitis, the treatment should be tonic in every respect; outdoor air if the patient has been housed; the bowels must move daily; the food should be nutritious, even if small in amount, if there is loss of appetite; and such tonics as seem to best suit the patient. Generally a good one is as follows:

R.	gm.	
Strychninæ sulphatis	04	
Arsenii trioxidi	04 or āā,	gr. 2 '3
Ferri reducti	1	gr. xv
Quininæ sulphatis	3	gr. xlv

M. et fac capsulas siccās, 20.

Sig.: One capsule three times a day, after meals.

If a nasal and nasopharyngeal catarrh does not tend to heal, but remains chronic, the patient should be sent to a nose and throat specialist to determine whether or not there is any local reason for the persistence of the condition. If such causes are found and can be removed the removal should be immediate, as a nasopharyngeal catarrh which has long persisted is hard to cure unless the patient removes to a more suitable climate.

A child who has frequent recurrences of colds should be carefully examined for adenoids, and if such are found they should be removed, and the general hygiene and life should be so aimed and directed as to prevent the development of a tendency to tuberculosis.

Angina Pectoris.—A. G. Brown, Richmond, in the *Bulletin of the University College of Medicine*, states that while postmortem findings in angina pectoris have been unsatisfactory, in many cases there are coincident structural changes, such as valvular lesions, myocardial degeneration, aortitis, adherent pericarditis and arteriosclerosis of the coronary arteries.

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[For other information see second page following reading matter]

SATURDAY, JANUARY 23, 1909

BACTERIOLOGIC METHODS IN OTITIS AND COMPLICATIONS

Until recently, results of systematic bacteriologic examinations of the blood in infections of otitic origin had not been recorded. The details given by Libman¹ of the results of his blood cultures in fifty-five cases of this kind consequently should be of general interest. Positive results were obtained in twenty-two of the fifty-five cases, and of these twenty-two patients, sixteen died and only six recovered. The cases giving growths in the cultures of the blood were almost wholly cases of sinus thrombosis and meningitis. In all the instances of sinus thrombosis that gave positive blood cultures it concerned streptococci, and in the cases of meningitis the streptococcus mucosus was concerned. This result, especially as to sinus thrombosis, is in accord with the observations in the literature which fail to mention any instances of pneumococcus sinus thrombosis that can stand criticism on basis of the modern criteria for distinguishing between streptococci and pneumococci.

Recent examinations of ear discharges as well as of the exudate in the complicating infections of the neighborhood show conclusively that the streptococcus plays the most important rôle, as it occurs in pure form in almost one-half of the cases. Pneumococci occur in pure form in only about 8 per cent.

Now if sinus thrombosis secondary to otitis actually is not caused by the pneumococcus it becomes more than ever of decided importance to know the exact flora of the ear discharge in complicated forms of otitis. Further investigations by means of the most approved modern technic are needed in order to settle this question of the bacteriology of sinus thrombosis as well as for other reasons. As the matter now stands the cultivation of streptococci from the blood in otitic infection points strongly to the existence of sinus thrombosis. Again, if streptococci are found in the blood after the sinus has been operated on, it most often means that the local focus requires further treatment, and ligation of the jugular vein may be indicated if not already made because experience from the cases studied by Libman points to the occurrence of endocarditis and continued multiplication of the cocci in the blood as rather rare

events in these cases. If pneumococci are found in the blood and streptococci are the predominating micro-organism in the ear discharge, an intercurrent pneumonia may be suspected.

It goes without saying that when the problem of whether the patient is suffering from complications of otitis media or from typhoid fever the growth of typhoid bacilli in the blood cultures would establish the diagnosis of typhoid fever. Libman also very properly emphasizes the value of negative results of blood cultures. Here again the interpretation is not always easy, as there are several distinct possibilities. In the first place, if there has been a sinus thrombosis with bacteremia and the jugular vein has been tied, sterile cultures would indicate that the infection had stopped. Again, if the mastoid has been exposed and there is no involvement of the sinus or of the brain, sterile cultures speak against a general infection being the cause of the continuation of the symptoms and one should look for intercurrent diseases. Enough has been said to show that careful bacteriologic studies of the local discharge and of the blood must be of great value in otitis and its complications, and especially, of course, in the obscure cases. The findings, however, will require judicious interpretation on the basis of all the available facts.

DIAGNOSTIC IMPORTANCE OF ELECTRIC VARIATIONS
IN THE HEART

The graphic studies on the venous and carotid pulse, the apex beat and the pulsations within the esophagus which have been applied clinically by Friedreich, Marey, François-Franck, Riegel, and in later years by James Mackenzie, Wenckebach, William His, Jr., G. A. and A. G. Gibson, D. Gerhardt, H. E. Hering, Hay and Rihl in Europe, and in America by Morrow, Erlanger, Hirschfelder, Schmoll, Hewlett, Cushny and Grosch, Cooper, Norris, Robinson, Thayer, Piersol and Bachman, have done much to enhance our knowledge of the disturbance of function in cardiac disease.

A still further advance has been made by W. Einthoven of Leyden¹ in placing the methods of electrophysiology at the disposal of the clinician. Einthoven has devised a galvanometer much more delicate than the capillary electrometer or any other form heretofore available. The movement of the fine quartz or platinum filament which occurs with changes of electric potential is magnified and photographed on a rapidly moving film and in this way the changes of potential during the cardiac cycle are recorded (electrocardiogram). This is a somewhat complicated procedure and of course, requires expensive apparatus and a dark room specially fitted for the purpose. But, the appliances once installed, the manipulations are easier, quicker and

1. Arch. Otol., 1908, xxxvii, 22.

1. Le télécardiogramme, Arch. internat. de physiol., 1906, iv, 132; Weiteres über das Elektrokardiogramm, Arch. f. d. ges. Physiol., 1908, cxvii, 517.

more certain than those for obtaining tracings from the venous pulse.

So far as the patient is concerned, the method is extremely simple. He is seated in a comfortable chair with the right hand and left foot placed in tubs which contain dilute salt solution and which are connected with the two poles of the galvanometer. Professor Einthoven has even laid wires from his laboratory to the wards of the Leyden Hospital, a mile and a half away, so that he can study the case at a distance, without moving the patient, by means of the "telecardiogram."

The interpretation of the curves is not unusually difficult. The small waves due to contraction of the atrium and the larger diphasic variations due to ventricular systole are readily observed and photographed. It is easy to distinguish disturbances of rhythm, heart block and extrasystoles on the records. Kraus and Nicolai of Berlin² have also demonstrated that it is possible to distinguish extrasystoles arising in the left side of the heart from those arising in the right. H. E. Hering³ has recently demonstrated that the so-called absolute irregularity, which is the most common form of permanent arrhythmia, is due to both extrasystoles and neurogenic irregularity occurring together in hearts whose auricles are paralyzed. Kraus and Nicolai have also added some evidence of occasional disturbances in the coordination of the ventricles.

Further studies along these lines are certain to lead to interesting results which will be of undoubted value for the understanding of the nature of the myocardial and functional diseases; it seems probable that they will enable us to adopt in each case that mode of treatment which is suited physiologically to correct the individual disturbance of function.

THE CLASSIFICATION OF BACTERIA

It is one of the most remarkable lapses in modern biologic science that the classification of the bacteria has been left so long in uncertainty and confusion. The circumstance is hardly creditable to workers in this field. There are many groups of living organisms in which nomenclature and classificatory arrangement, whatever may be their biologic importance, have little or no influence on the course of investigation or on matters of direct practical concern. But just the reverse is true of bacterial classification. The difficulties that surround the sure identification of a newly found micro-organism are familiar to everyone who has had occasion to consult the meager descriptions and unhelpful systematic arrangements now available for the student. Chester's well-known compilation, although based on a reasonable principle, has not proved so useful as was hoped,

because of its numerous technical inaccuracies. The practical importance of determining group limitations and variations has presented itself to many active workers in bacteriology. In more than one infectious disease questions as to origin, mode of treatment and methods of prevention have hinged on the identity and relationships of particular "cultures" or "strains."

Isolated observers have dealt with this perplexing feature of classification and relationship sometimes in a perfunctory, sometimes in a thoroughgoing way, but any determined attack on the underlying problem itself has not, as a rule, been hazarded. It is with special welcome, therefore, that we find in a recent book¹ a discussion of the principles of bacterial classification which ought to have a far-reaching influence.

In this monograph we find a well conceived and thoughtful attempt, based on a large amount of painstaking original work, to establish a rational scheme of classification of the spherical bacteria. The criteria of differentiation are similar to those which modern research has come to emphasize in other fields of taxonomic work. As these authors express it: "The biometrical methods, which have proved so useful in the study of the races of man, promise to be of even greater value in the systematic analysis of types among the bacteria, where so many factors combine to preserve varietal differences on so wide a scale. If individual strains only are considered, an infinite series of differences appear. If the same strains are considered statistically, that is, if the frequency of a given character be taken into account, it is apparent that certain combinations of characters are much more common than others. Measurement of almost any character by quantitative methods shows that the bacteria examined group themselves on a simple or complex curve of frequency. The modes of this curve indicate centers of variation about which the individuals fluctuate, and these centers of variation are the real systematic units of the group. The recognition of such centers, as specific types, offers the natural and satisfactory compromise between systematic multiplicity and vague generalization."

It is evident that whatever degree of immediate acceptance the Winslows' classification of the *Coccaceæ* may meet with, or whatever may be the ultimate fate of the new subdivisions and nomenclature which they have devised, the principles of classification which they advocate can receive only the heartiest commendation and support. The general rules of procedure laid down in this book are not particularly novel, but they need to be followed and insisted on if bacterial classification is ever to be put on a firm footing: "In the first place, it must be admitted, before any progress is possible, that physiologic characters are as important as morphologic characters in this group, and that they alone, if of suf-

2. Ueber das Elektrokardiogramm unter normalen und pathologischen Verhältnissen. Berl. klin. Wochenschr., 1907, xlii, 765, 811.
3. Das Elektrokardiogramm des Pulsus irregularis perpetuus. Deutsch. Arch. f. klin. Med., 1908, xciv, 205

1. The Systematic Relationships of the *Coccaceæ*, by C. L. A. Winslow and Anne Rogers Winslow, New York. John Wiley and Sons.

ficient degree, may serve for specific and generic definition." "Secondly, an absolute requisite in regard to bacterial characters, morphologic or physiologic, is that they should be definite, and capable of so clear a description that they can be identified without difficulty by other observers." "Finally, if our view is correct, bacterial types should never be described on the strength of an examination of single individual strains; but only after a comparative study of the numerical frequency of each particular character in a considerable series of cultures."

Let us hope that all obsolete and slovenly descriptions of the spherical bacteria henceforth will be treated as they deserve and that this book will mark the beginning of a new period in bacterial classification.

ANOTHER AUTOMOBILE NUMBER

As the doctor's gig gave way to the four-wheeled buggy, so the latter is being replaced by the motor-car. In spite of the many and varied annoyances connected with the automobile, each year more and more physicians are discarding the horse-drawn rig for one propelled by electricity or gasoline. For, in spite of the annoyances, and the apparent—and often real—extra expense of original cost and up-keep, the automobile has advantages for physicians which are compelling its more general use. This is especially true of the busy man in general practice whose time is valuable. To him it is becoming a necessity rather than a luxury. The automobile question, therefore, is a very practical one for physicians—one that affects their professional work, their finances and their comfort.

Three years ago,¹ with considerable trepidation, we decided to issue an automobile number, and some thirty-six pages were devoted to the subject. With less misgiving last year² we repeated the experiment. The enthusiastic reception accorded the two previous issues makes it certain that another number devoted to the subject will be appreciated. The third automobile number of THE JOURNAL is therefore planned for March 6.

This year we expect to have several contributions from experts on the various phases of the subject, such as the relative value of several types of motors, high wheels versus low wheels, the ever important question of tires, methods of transmission, etc., but the greater portion of the matter we hope to have contributed by our readers, whom we ask to submit for publication brief, pointed accounts of their experiences and their deductions from the latter. Suitable illustrations are desired.

Those who are willing to contribute are requested to notify us at once, stating the particular points of the subject they will cover. Manuscripts should reach us by February 15 and be limited to 700 words.

We are anxious to make this number of practical value, but can succeed only with the cooperation of those who have had experience. The machine is no longer a toy and, while it has not yet reached perfection, it has become of very practical use. It is therefore appropriate that every possible ray of light be shed on this as on other questions, in order that the physician's equipment may be as helpful as possible for his important work in life.

THE LEPROSY PROBLEM IN HAWAII

In his report on the status of leprosy in the Hawaiian Islands Dr. Brinckerhoff,¹ director of the Leprosy Investigation Station at Molokai, gives some interesting data which indicate the necessity for thorough study of this disease, especially the means by which it is transmitted. While the cause of leprosy, the *Bacillus lepræ*, was discovered years ago by Hansen, almost nothing is known about its mode of transmission and other problems important in effecting control of the disease. The statistics indicate that in spite of the system of segregation which has been in operation for over forty years, the disease is steadily making progress, not only among the native population but also among the other races on the islands. The statistics available show that in 1876 1.35 per cent. of the entire native population were lepers; in 1900,² 2.5 per cent. were thus afflicted. This increase may be partially explained by the fact that more rigid segregation is now practiced, but according to Dr. Brinckerhoff there can be no doubt but that the increase is real. Heretofore the segregation has been practically voluntary. While it is the duty of all officers of the law to report suspected cases, there are no officials whose duty it is to seek out lepers. The result is that the lepers are hidden away by their friends until they are so marked by the disease that it is no longer possible to conceal them; the unfortunate individuals then surrender voluntarily to the health officers. This is demonstrated by the fact that the duration of the disease before apprehension averages a little less than four years. The statistics also show that the disease occurs more frequently in the centers of population and is not common in the remote districts; for instance, it is far more prevalent in Honolulu than in any other part of the territory. While it is true that natives in the country may occasionally come to the cities for treatment or for concealment, the chief reason for the prevalence of the disease in cities appears to be that the conditions of life there furnish better opportunities for transmission. The report also indicates that leprosy is increasing not only among the native population, but also among European and Asiatic immigrants. The increasing number of non-Hawaiian lepers, shown among the Japanese and Portuguese particularly, is probably due as much to importation as to infection acquired in the territory. It is concluded from this fact that leprosy will persist unless some effective means is devised to

1. Brinckerhoff, Walter R.: The Present Status of the Leprosy Problem in the United States. Treasury Dept., P. II and M.-H. S., Washington, 1908.

2. Statistics not available since 1900.

1. April 21, 1906.
2. March 7, 1908.

check its spread, and the urgent problem at present is how to obtain satisfactory results in the disease. Much has been done in recent years to improve conditions of living on the lower slopes, and it is hoped that as this becomes more generally known among the natives they will regard it as primarily the examination and that there will be less oral disease by the Indians.

THE "OPTOMETRY" BILL

With the assembling of the state legislatures it becomes evident that the concerted movement for the adoption of "optometry" laws in the various states has not yet subsided. Reference to these laws have been made in *The Journal* from time to time. The new year opens auspiciously for the "optometrists" in view of the fact that the governor of Vermont has just signed the "optometry" bill. The enactment of this law was mainly due to the constant lobbying and political activity of the few persons interested in securing the passage of the bill, which met with practically no opposition. As usual, the little opposition presented was from a few scattered physicians who struggled in vain to prevent its passage. As in other states, the "optometrists" endeavored to secure at least the nominal support of the medical profession by circulating petitions on the physicians' price or the introduction of the bill; they thus obtained the signatures of unthinking and unscrupulous physicians. This apparent endorsement was used before the legislature. These laws are not only entirely unnecessary but are actually legislation that which is detrimental to public health and are proposed and pushed for selfish and mercenary reasons. Their adoption should be vigorously opposed in all states in which they are introduced and careful preparation for their defeat should be made at once by all state associations, committees on medical legislation and boards of health. Immediate steps should be taken to present to each member of the legislature in any state in which these bills are introduced such convincing reasons for their defeat as can not be overlooked or controverted.

THE FOOD VALUE OF MEAT EXTRACTS AND MEAT JUICES

The prominent report on "Meat Extracts and Similar Preparations," which we referred to on another page, gives occasion for reflection. As physicians we assume a great responsibility in selecting foods, especially in those critical cases in which deficiency is experienced in their nutrition. We do not always sufficiently realize that by giving preparations having little food value, under the impression that they are nutritious, we may actually starve our patients. Reports such as the one under consideration, and from such a source, need to be pondered on seriously by those who have previously used such preparations. The facts set forth in this report not only show that the claims regarding the food value of "meat extracts" and "meat juices" are unfounded, but they make plain the therapeutic limitations of such products. Now

that this report is available, there is no excuse for continuing such preparations except on the understanding that what is being given is, essentially, not a food. Spurious arguments are often built on the observation that patients sometimes appear to improve after the use of such preparations. The very names, meat juice, beef juice, and the like, have, however, always been words to conjure with, and let us remember that desire is a large psychic element in many diseases, and especially in most cases in which there is an inability to take food. Let us use psychotherapy, if we will, but let it not displace food. Let us particularly in the case of unfortunate sick children—who are usually free from psychoneurotic tendencies of this character—not feed them psychobulimically. It is also often said that such preparations stimulate appetite and the nervous system. They frequently do stimulate appetite, but their effects on the nervous system are much more open to question. Granting these things, however, what do they mean? When we order foods, we want foods, not simply stomachics or nerve stimulants. Let us be grateful that the Bureau of Chemistry has furnished us with exact knowledge as to the nutritive value of a class of preparations than which none has had more claimed for it with less basis of fact.

Medical News

ARIZONA

Work on Hospital Begins.—Work has been begun on the hospital building to be erected in connection with the Territorial Asylum for the Insane, Phoenix. The building will be constructed of cement, and will be of fire-proof and sanitary construction.

License Revoked.—The Territorial Board of Medical Examiners, on December 11, is said to have revoked the license of R. A. Aiton, medical advisor to a medical company of Phoenix. Notice has been filed that Dr. Aiton will move for a writ of certiorari to review the proceedings of the board.

Personal.—Dr. Edward S. Godfrey, Jr., Tucson, has been appointed secretary of the Territorial Board of Health, and territorial health officer. A committee consisting of Drs. James M. Sweetnam, John W. Thomas and W. C. Ellis has been appointed by the Maricopa County Medical Society to draft a bill requiring the collection of vital statistics in the territory.

Hospital Burned.—The Whitwell Hospital, Tucson, completed less than a year ago at a cost of \$75,000, by Mrs. Whitwell of Brooklyn, N. Y., in memory of her husband, was totally destroyed by fire December 26. The loss is said to be about \$60,000. The patients, about forty in number, were removed without casualty. The hospital will be rebuilt immediately.

DISTRICT OF COLUMBIA

Personal.—Dr. J. J. Kinyoun has been appointed pathologist and Dr. Truman Abbe, radiologist on the staff of the Tuberculosis Hospital, Washington. Dr. Nathaniel P. Butler of the Pension Office was seriously burned Christmas Day while throwing a burning Christmas tree out of the window, but is making a rapid recovery.

Society Meeting.—The annual meeting of the Medical Society of the District of Columbia was held January 4, when the following officers were elected: Dr. Edward A. Balloch, president; Drs. John Van Rensselaer and George T. Vaughn, vice-presidents; Dr. Henry C. Macatee, recording secretary, and Dr. Charles W. Franzoni, treasurer, all of Washington.

FLORIDA

Society Meetings.—At the annual meeting of the Hillsborough County Medical Association, held in Tampa, the following officers were elected: President, Dr. Leslie W. Weedon; vice-president, Dr. Charles W. Bartlett; secretary-treasurer,

Dr. J. C. Vinson; and delegate to the state medical association, Dr. Rollin Jefferson, all of Tampa.—Escambia County Medical Society, at its annual meeting, held in Pensacola, December 22, elected the following officers: President, Dr. Clinton W. D'Alemberte; vice-president, Dr. Marion E. Quina; secretary, Dr. Clarence Hutchinson, and treasurer, Dr. William A. J. Pollock.

Personal.—Dr. J. Harrison Hodges, Gainesville, has been appointed physician-in-charge of the National Odd Fellows Sanatorium, vice Dr. Charles F. Marsh, Pensacola, deceased.—The case of the city of De Funiak against Dr. McKinnon for practicing medicine without a city license has been decided in favor of the defendant on the ruling that the city has no constitutional or legal right to impose such license fees.—Dr. Claude Joyner, Jacksonville, has been re-elected physician-in-charge of the Duval County Hospital.—Dr. Edmund Warren, Palatka, has been appointed a member of the State Board of Medical Examiners.—Dr. Clinton W. D'Alemberte, Pensacola, has been elected physician of Escambia County.

GEORGIA

Hospital Trustees Would Elect Entire Staff.—The trustees of Grady Hospital, Atlanta, requested the city council to amend the rules so as to permit the trustees to select the medical staff from the city at large and not from the two colleges as at present.

Personal.—Dr. James H. McDuffie, Columbus, has been appointed a member of the State Board of Health.—Dr. Lamar-tine G. Hardman, Commerce, has been re-elected a member of the board of trustees of the State Agricultural College.—Dr. Arthur A. Morrison, Savannah, has been appointed assistant surgeon general of the United Sons of Confederate Veterans.—Dr. Sidney Walker, Dublin, has been appointed physician of Laurens County.

Tuberculosis Sanatorium Organized.—Pine Mountain Tuberculosis Sanatorium was organized at Shiloh, December 10. Dr. Jesse M. Anderson, Columbus, was elected president; Dr. N. P. Walker, Milledgeville, vice-president, and Dr. Charles A. Dexter, Columbus, secretary-treasurer. It is contemplated to erect on top of Pine Mountain one large pine log building to be used as an administrative building, and other pine log cabins so arranged that they may be closed and used as dressing rooms, or thrown open for sleeping porches. The organization is capitalized at \$25,000.

Society Meetings.—At the annual meeting of the Muscogee County Medical Society, held in Columbus, Dr. Martin Crook was elected president; Dr. Isaac C. Evans, vice-president; Dr. W. L. Cooke, secretary; Dr. Thomas E. Mitchell, treasurer; Dr. James H. McDuffie, delegate to the state medical society; and Dr. T. Neal Kitchens, censor.—At the annual meeting of Fulton County Medical Society, held in Atlanta, December 18, the following officers were elected: President, Dr. Cyrus W. Strickler; vice-president, Dr. J. Ross Simpson; secretary, Dr. Edgar G. Ballenger; treasurer, Dr. Arnold H. Lindorme, and censor, Dr. Michael Hoke.

ILLINOIS

Civil Service Examination.—The Illinois Civil Service Commission announces the following examinations: May 6, for first assistant physician (promotional); assistant physician in hospitals for the insane; physicians and medical internes, and for the Eye and Ear Infirmary, Chicago—eye surgeon, assistant eye surgeon, alternate assistant eye surgeon; ear surgeon, assistant ear surgeon, alternate assistant ear surgeon; pathologist, assistant pathologist, and six internes. Requests for applications and information should be addressed to the Illinois Civil Service Commission, Springfield.

Annual Health Board Meeting.—The annual meeting of the State Board of Health was held in Springfield January 15. Dr. George W. Webster, Chicago, was re-elected president, and Dr. James A. Egan, Springfield, secretary and executive officer. The board decided to recommend to the governor the creation of a state sanatorium for consumptives, provided cities and villages do not take advantage of the power conferred on them of erecting municipal hospitals, and further recommended the provision for a state colony for epileptics. The board also determined to continue the crusade against consumption and to make a thorough investigation into the milk supply of the state to determine whether milk contains the germs of tuberculosis and other communicable diseases.

Society Meetings.—Aurora physicians met December 17, organized the Aurora Medical Society, and elected the following officers: President, Dr. Herman Milbacher; vice-president, Dr.

Robert A. Windett; secretary-treasurer, Dr. William H. Schwingel, and executive committee, Drs. Edward W. Banker, Herman A. Brennecke and William P. Sherman.—At the annual meeting of Champaign County Medical Society, the following officers were elected: President, Dr. William E. Schowengerdt, Champaign; vice-president, Dr. Fred H. Powers, Champaign; secretary-treasurer, Dr. Cyrus F. Newcomb, Champaign; censors, Drs. Albert S. Wall, Champaign; Thomas J. McKinney, Gifford, and William L. Gray, Champaign; delegate to the state society, Dr. James S. Mason, Urbana; and alternate, Dr. Thomas J. McKinney, Gifford.

Chicago

Defendant Wins Suit.—A jury in Judge Gibbons' court, on January 6, returned a verdict in favor of Dr. Henry Schmitz, who was sued for \$20,000 by Dr. George Zoeller for the loss of his foot, due to a gunshot wound accidentally inflicted while hunting.

Unlicensed Practitioner Fined.—E. A. Kamin, an optician, is said to have been fined \$100 January 14 for practicing medicine without a license. An inspector of the State Board of Health testified that he had gone to the office of this individual, complaining of a sore throat, and had been given a prescription, for which he was charged twenty-five cents.

Ophthalmologists Meet.—The annual meeting and dinner of the Chicago Ophthalmological Society was held January 11. Dr. Thomas A. Woodruff, president, acted as toastmaster. The following officers were elected: President, Dr. Frank Allport; vice-president, Dr. William A. Mann; secretary, Dr. Willis O. Nance; councilor, Dr. Paul Guilford, and councilor to the Chicago Medical Society, Dr. Thomas Faith.

Vital Statistics.—The deaths for the week ended January 16 were 145 more than for the preceding week, the chief increase being from pneumonia, the mortality from which was 150. Cases of diphtheria, scarlet fever, measles, chickenpox and pneumonia have increased, while cases of whooping cough and typhoid fever are fewer in number. At the hospital for contagious diseases there were 37 cases of diphtheria under treatment.

INDIANA

Society Meeting.—The Æsculapian Medical Society, at its annual meeting in Indianapolis, elected Dr. Calvin R. Atkins, president; Dr. C. R. Cottey, vice-president; Dr. A. J. King, secretary; and Dr. Henry L. Humons, treasurer.

Personal.—Dr. John H. McCutchan, Evansville, who returned a few days ago from Europe, is reported to be critically ill at his home.—Dr. Richard W. Sipe, Orange, fell on a slippery pavement at Rushville, January 8, and injured his leg.—Drs. Carl G. Winter and Thomas J. Dugan, Indianapolis, have been appointed physicians of the coroner of Marion county.

Medical Board Election.—The State Board of Medical Registration and Examination, at its annual meeting held in Indianapolis, January 12, reorganized with the following officers: President, Dr. William A. Spurgeon, Muncie; vice-president, Dr. John C. Webster, Lafayette; secretary, Dr. William T. Gott, Crawfordsville (re-elected); and treasurer, Dr. Moses S. Ganfield, Frankfort (re-elected).

LOUISIANA

Antituberculosis League Appointments.—The clinical staff of the Louisiana Antituberculosis League is as follows: Drs. E. L. McGehee, J. H. Levin, Percival B. McCutcheon, George S. Brown, M. Thomas Lanoux, Sarah T. Mayo, Edith Loeber, J. George Dempsey, Frank J. Hartley and Adolph O. Hoe-feld. The following consulting staff was appointed: Medical, Drs. George S. Bell, J. W. Durel, R. Chilton and A. L. Levin; throat, Drs. Otto Joachim and A. I. Weil; genitourinary, Dr. Albert B. Brown; stomach, Drs. Jacob A. Storck and Sidney K. Simon; eye, Dr. C. Bahn; skin, Dr. Joseph N. Russell; nerves, Dr. E. M. Hummel; orthopedic, Drs. Erasmus D. Feun-ner, John F. Oechsner and Edward S. Hatch; and surgical, Drs. Joseph A. Danna and D. Urban Maes.

MARYLAND

New Society.—The physicians of Cumberland have organized a city branch of the Alleghany County Medical Society, with the following officers: President, Dr. Thomas W. Koon; vice-president, Dr. Henry S. Wailes, and secretary-treasurer, Dr. Charles L. Owens.

Personal.—Dr. J. Harry Stonestreet is reported to be seriously ill with pneumonia at his home in Barnesville.—Dr.

Harry Friedenwald, Baltimore, has been elected president of the Hebrew Educational Society of the United Hebrew Charities.—Dr. Harry Adler has been re-elected president of the Hebrew Hospital, Baltimore.

Dissemination of Health Information.—The Maryland Society of Social Hygiene has been organized, and will engage in a strenuous campaign for education on the subject of health. A number of lectures for both sexes is planned to be delivered before clubs and social organizations. Dr. Emil Novak, Baltimore, is secretary of the society.

Writers of Maryland.—In THE JOURNAL, January 9, an item was published giving the names of certain medical authors of Maryland. This does not represent a complete list, but was taken from a single issue of the Baltimore Sun. A series of "Authors Living and Working in Maryland" has been appearing in that paper for a number of weeks.

Society Election.—At the annual meeting of Caroline County Medical Society, held in Denton, the following officers were elected: President, Dr. Jacob L. Noble, Preston; vice-president, Dr. Stephen S. Stone, Ridgely; secretary-treasurer, Dr. James R. Downes, Preston; and delegate to the Medical and Chirurgical Faculty of Maryland, Dr. Jacob C. Madara, Ridgely.

Jewish Charities.—During the past year the Hebrew Hospital treated 1,000 patients, and 521 major operations were performed. Receipts from private patients were \$10,202. In the dispensary 12,155 patients were treated and 17,177 prescriptions filled. There was a deficit for the year of \$2,643.39.—During the six months ended January 10, the Jewish Home for Consumptives reports that it has had in its care 36 patients, and that several have been benefited so much that they have been able to resume outdoor employment.

State Board Meeting.—At the annual meeting of the Maryland State Board of Health, January 13, resolutions were passed protesting against the meager pay allowed county health officers, and urging the establishment of a satisfactory statutory rate of compensation on the basis of population. The board also urges the county commissioners to allow the expenses of county health officers, in addition to their salaries. The election of officers resulted as follows: President, Dr. William H. Welch, Baltimore; executive committee, Drs. James Bosley, Baltimore, and Howard Bratton, Elkton, and Mr. Douglas H. Thomas; medical assistant, Dr. Caleb W. G. Rohrer; bacteriologist, Dr. William R. Stokes, and assistant bacteriologist, Dr. Harry W. Stoner.

MASSACHUSETTS

Bequests.—By the will of Caleb Chase, Brookline, the Boston Floating Hospital will receive \$10,000, the Woman's Charity Club Hospital \$5,000, and the West End Nursery and Infant's Hospital, \$5,000.—The trust funds left by the late Gardner S. Burbank, Fitchburg, to become available for a free hospital for the city, have been placed in the custody of the trustees. The value of the funds has increased by careful investment since the donor's death from \$438,000 to \$510,000.—By the will of Lavinia E. Hunting, Malden, \$3,000 is devised to the Manhattan Eye and Ear Infirmary, New York City, and \$3,000 to the Cullen Consumptives Home, Boston.

NEBRASKA

Hospital Report.—In the biennial report of the superintendent of the Norfolk State Hospital for the Insane, he recommends the establishment of a central pathologic laboratory, whose head shall guide the medical work of the different hospitals and act in cooperation with their respective superintendents. During the last biennium there was expended \$141,932.64, leaving a balance remaining of the appropriation of \$87,067.36. The estimated expenditure of the coming biennium is \$292,600, and of this amount \$116,000 is for permanent improvements.

NEW JERSEY

Tuberculosis Hospital.—The Hudson County Board of Freeholders is erecting a tuberculosis hospital at Laurel Hill, which is nearing completion. The following have been named as board of managers: Drs. George W. King, Secaucus, and Joseph F. X. Stack, Hoboken, for three years; Drs. Edwin J. G. Valentine, Jersey City, and George E. McLaughlin, Jersey City, for two years, and Drs. Frank W. Mallabieu, Jersey City, and Frederick Sternkopf, for one year.

Society Meetings.—The Newark Medical League held its annual meeting December 28, when the following officers were elected: President, Dr. Herbert W. Long; vice-president, Dr. Nathaniel G. Price; treasurer, Dr. Edwin Steiner; recording

and corresponding secretary, Dr. Philip G. Hood; financial secretary, Dr. Louis Weiss, and reporter, Dr. Julius Levy. At the adjournment of the meeting a banquet was served to the members, over which Dr. David A. Kraker, former president of the league, presided as toastmaster.—The Orange Mountain Medical Society celebrated its twenty-fifth anniversary December 18, by a dinner at the Essex County Club. The president, Dr. Harry E. Matthews, Orange, acted as toastmaster. At the annual meeting of this society, which was held at Orange January 15, the members were entertained at dinner by the retiring president, Dr. Harry E. Matthews, the subject of whose address was "Fads and Fancies of Doctors and Their Patients." The following officers were elected: President, Dr. Mefford Runyon, South Orange; vice-president, Dr. Richard P. Francis, Montclair; secretary, Dr. Richard D. Freeman, South Orange; treasurer, Dr. James M. Maghee, West Orange, and reporter, Dr. William H. Lawrence, Jr., Summit.—The Passaic Medical Society, at its annual meeting January 15, elected Dr. John N. Ryan, president; Dr. Biram Williams, vice-president (re-elected); Dr. Leo H. Joyce, secretary; and Dr. Frederick F. C. Demarest, treasurer.—At the annual meeting of the Atlantic County Medical Society, the following officers were elected: President, Dr. Clyde M. Fish, Pleasantville; vice-president, Dr. Thomas G. Dunlap; secretary and treasurer, Dr. W. Price Davis; reporter, Dr. Theodore Senseman; censor, Dr. Walter Reynolds; delegates, Drs. Arthur E. Ewens and Edward S. Sharpe, all of Atlantic City.

NEW YORK

Typhoid Fever Epidemic.—Cooperstown is reported to have an epidemic of typhoid fever. On January 18, there were thirty cases in the town, which has a population of about 3,000.

Bill Affecting "Patent Medicines."—A bill, known as the Gluck bill, has been introduced into the legislature, which requires the disclosure of the ingredients of "patent medicines" to the State Health Commissioner and that the formula shall appear on the label.

County Medical Society Meeting.—At the eighty-seventh annual meeting of the Medical Society of the County of Erie, held December 21, in Buffalo, the following officers were elected: President, Dr. Charles A. Wall; vice-presidents, Drs. Grover W. Wende and Bernard Cohen; secretary, Dr. Franklin C. Gram; treasurer, Dr. Albert T. Lytle, and censors, Drs. John H. Grant, DeLancey Rochester, Francis E. Fronczak, Walter D. Greene, and George L. Brown.

Vital Statistics.—The State Department of Health reports that during November there were 1,101 deaths in the state from tuberculosis, an increase of 29 over the corresponding month of 1907. There were 10,306 deaths recorded in November, giving an annual death rate of 14.5 per 1,000 population. For the corresponding month of last year the death rate was 15.6 per 1,000. The total number of births reported was 16,075, making an annual birth rate of 22.6 per 1,000.

To Study Imprisonment of Insane.—Dr. Albert Ferris, president of the State Commission in Lunacy, intends to make a tour of the jails and prisons of the state with the view of putting an end to the alleged unlawful incarceration of insane persons in penal institutions. The officials in charge of such institutions will unite with the Lunacy Commission in the efforts which are being made to improve the present condition of affairs. A special committee of the superintendents of the state hospitals has made a report on the care of insane pending commitment, which takes up the matter of temporary incarceration in jails and will distribute it throughout the state.

New York City

For Beth Israel Hospital.—At a meeting recently held for the purpose of organizing a general committee, it was announced that additional subscriptions to the amount of \$100,000 had been obtained for the proposed new building for this hospital. The amount in hand to date is \$160,000.

Hospital Alumni Organize.—On January 12 the alumni of the Lying-in Hospital of the City of New York were organized and the following officers were elected: President, Dr. Asa B. Davis; vice-president, Dr. William P. Macleod; secretary, Dr. Joseph E. Lumbard; treasurer, Dr. John H. Telfair, and editor, Dr. C. F. Jellinghouse.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended January 9, 507 cases of pulmonary tuberculosis, with 162 deaths; 394 cases of diphtheria, with 42 deaths; 538 cases of measles, with 12 deaths; 305 cases of

scarlet fever, with 15 deaths; 46 cases of typhoid fever, with 6 deaths; 30 cases of whooping cough, with 5 deaths; 8 cases of cerebrospinal meningitis, with 8 deaths, and 260 cases of varicella—making a total of 2,088 cases and 250 deaths.

Hebrew Charities Endowed.—By the will of Louis A. Heinsheimer, the deceased treasurer of the United Hebrew Charities, \$1,000,000 is bequeathed to Hebrew benevolent institutions, provided that within a year from the time the will is probated a corporation shall have been formed representing a consolidation of Mount Sinai Hospital, the Hebrew Benevolent Orphan Society, the Montefiore Home for Chronic Invalids, the Educational Alliance, the Home for Aged and Infirm Hebrews and the United Hebrew Charities and any other institutions similar in character which these institutions shall deem it advisable to admit into the corporation. The will also provides that if these institutions shall decide not to form such a corporation, but shall within the specified time create a body which shall have for its purpose the financial or other aid of these six institutions and any other charitable Jewish institutions in this city, then the \$1,000,000 shall go to such a body. In case such a body is not formed the United Hebrew Charities will receive \$100,000, the Montefiore Home \$25,000 and the remainder will fall into the residuary estate.

Maximum Mortality from Pulmonary Tuberculosis by Sex and Age Groups.—Dr. William H. Guilfooy, Registrar of Records, Department of Health, gives the following interesting figures:

MALES			
Age groups.	1868. Deaths.	Age groups.	1907. Deaths.
25-34 years.....	500	35-44 years.....	1,087
35-44 years.....	369	25-34 years.....	1,056
15-24 years.....	301	45-54 years.....	764
45-54 years.....	267	15-24 years.....	500
55-64 years.....	159	55-64 years.....	305

FEMALES			
Age groups.	1868. Deaths.	Age groups.	1907. Deaths.
5-34 years.....	434	25-34 years.....	243
15-24 years.....	344	15-24 years.....	483
35-44 years.....	332	35-44 years.....	461
45-54 years.....	173	45-54 years.....	210
55-64 years.....	119	55-64 years.....	96

BOTH SEXES			
Age groups.	1868. Deaths.	Age groups.	1907. Deaths.
25-34 years.....	934		1,691
35-44 years.....	701		1,548
15-24 years.....	645		983
45-54 years.....	440		974
55-64 years.....	278		401

NORTH CAROLINA

Annual Meeting.—At the thirteenth annual meeting and banquet of the Buncombe County Medical Society, held in Asheville, December 23, the governor, Hon. P. D. Murphy, Dr. J. Howell Way, Waynesville, of the State Board of Health, and others, responded to toasts. Dr. Way made a strong appeal for the influence of the society in helping to secure at the next session of the legislature an appropriation for the enlargement and extension of the work of the State Board of Health, and for the enactment of a vital statistics bill. The following officers were elected: President, Dr. Martin L. Stevens, Asheville; vice-president, Dr. Clyde E. Cotton, Black Mountain; secretary, Dr. Gaillard S. Tennent, Asheville; treasurer, Dr. Thomas E. W. Brown, Asheville, and delegates to the state society, Drs. Arthur W. Calloway and John H. Williams, Asheville.—At the annual meeting of Forsyth County Medical Society held in Winston-Salem, December 8, the following officers were elected: President, Dr. Robert D. Jewett; vice-president, Dr. John Bynum; secretary-treasurer, Dr. Eugene P. Gray; delegate to the state society, Dr. John F. Shaffner, and alternate, Dr. Aaron Y. Linville, all of Winston-Salem.—At the annual meeting of Wayne County Medical Society, held in Goldsboro, the following officers were elected: President, Dr. Richard E. Lee, Goldsboro; vice-president, Dr. Theodore L. Ginn, Goldsboro; secretary-treasurer, Dr. J. Rainey Parker, Goldsboro; delegate to the state society, Dr. Marius E. Robinson, Goldsboro; alternate, Dr. Edgar C. Person, Mount Olive; and censors, Drs. Marius E. Robinson and William H. Cobb, Goldsboro, and Dr. James W. Kornegay, Mount Olive.—At the annual meeting of New Hanover County Medical Society, held in Wilmington, December 7, the following officers were elected: President, Dr. John T. Schonwald; vice-president, Dr. John B. Cranmer; secretary-treasurer, Dr. Morris M. Caldwell; censor, Dr. John C. Wessell, and delegate to the state society, Dr. Edward J. Wood, all of Wilmington.

OHIO

Society Meetings.—At the sixty-fourth annual meeting of the Northwestern Ohio Medical Association, held in Findlay, December 10 and 11, the following officers were elected: President, Dr. Thomas Hubbard, Toledo; vice-presidents, Drs. Charles W. Moots, Toledo, and Ora L. Norris, Deshler; secretary, Dr. Edwin A. Murbach, Archibald (re-elected), and assistant secretary and treasurer, Dr. Stuart T. Drombold, Elmore (re-elected).—The Columbus Pathologic Society has been organized with the following officers: President, Prof. E. F. McCampbell, Ohio State University; vice-president, Dr. John D. Dunham; secretary, Dr. Frank Winders, and censors, Prof. F. L. Landacre and Dr. Ernest Scott.—At the annual meeting of the Academy of Medicine of Toledo and Lucas County, January 8, Dr. James A. Duncan was elected president; Dr. Walter W. Brand, vice-president, and Dr. Charles F. Tenney, secretary.

PENNSYLVANIA

Instruction for Health Employés.—The school of sanitary instruction for employés of the Bureau of Health, Pittsburg, opened January 14, when a lecture was delivered by Dr. James F. Edwards, superintendent of the Bureau of Health.

Sanitary Instruction.—The Allegheny County Medical Society has adopted a new by-law creating a board of public instruction, consisting of seven members, whose duty it is to offer instruction to laymen and organizations of laymen in Pittsburg and vicinity. Dr. William H. M. Cameron is chairman of the committee.

Entrance Requirements Increased.—The Medical Department of the University of Pennsylvania has announced that for the session of 1909-10 candidates for admission must present certificates showing that they have completed the freshmen work in a college of liberal arts, or pass an equivalent examination. Instead of 32 units, therefore, the entrance requirements will be 35 units.

Anti-Cocain Bill.—In an effort to prevent the unauthorized sale of morphin, cocain and other harmful drugs, Representative Samuel W. Salus, of Philadelphia, will present a bill before the legislature, making the sale of such drugs unlawful except on a physician's prescription. At the same time Mr. Salus will offer an amendment to the cocain act increasing the imprisonment penalty for the illicit sale of that drug from 6 months to 2 years.

Officers Elected.—At the November meeting of the Bucks County Medical Society, the following officers were elected: President, Dr. Charles B. Smith, Newton; vice-presidents, Drs. Walter H. Brown, Richlandtown and William C. LeCompte, Bristol; secretary, treasurer and reporter, Dr. Anthony F. Myers, Blooming Glen; and censors, Drs. George M. Grim, Ottsville; William R. Cooper, Point Pleasant, and Alfred E. Fretz, Sellersville.—Blair County Medical Society, at its annual meeting, December 22, elected the following officers: President, Dr. Eugene C. Fetter; vice-presidents, Drs. Clair E. Robinson and Samuel L. McCarthy; secretary, Dr. Charles F. McBurney; treasurer, Dr. William S. Ross; reporter and corresponding secretary, Dr. Fred H. Bloomhardt; and censors, Dr. James E. Smith, Charles Long, all of Altoona, and Dr. Henry H. Brotherlin, Hallidaysburg. At the same meeting it was decided to divide the county into three sections and appoint men to preside at these meetings and to take up the postgraduate work as recommended by THE JOURNAL.—At the annual meeting of the Delaware County Medical Society the following officers were elected: President, Dr. Maurice A. Neufeld, Chester; vice-president, Dr. Charles H. Schoff, Media; secretary, Dr. Charles I. Stiteler, Chester; treasurer, Dr. Daniel W. Jefferies; and librarian, Dr. Samuel Trimble, Newtown Square.—At the annual meeting of the York County Medical Society, the following officers were elected: President, Dr. J. Ferdinand Klinedinst; vice-president, Drs. Lawton M. Hartman and Lewis H. Fackler; recording secretary, Dr. Laura J. Dice; corresponding secretary, Dr. A. B. Shatto; librarian, Dr. Israel H. Betz; treasurer, Dr. Francis K. Weil; censors, Drs. Isaac C. Gable, Alfred A. Long, York, and Nathan C. Wallace, Dover, and trustee, Dr. Matthew J. McKinnon.

Philadelphia

Hospital Secures Property.—The Medico-Chirurgical Hospital has purchased for \$35,000 the property at 1719 Arch street and 1720 Cherry street, 20x288 feet, which is to be used for the erection of additions to the institution.

Personal.—Dr. Henry R. M. Landis has been appointed chief of the out-patient department of the Jefferson Medical College Hospital.—Dr. Joseph A. Moore has been appointed patholo-

gist to St. Mary's Hospital.—Dr. Charles K. Mills and Dr. Forrest Willard have been elected to the Council of the Department of Medicine of the University of Pennsylvania.—Dr. Robert G. LeConte has been elected a member of the Board of Managers of the Children's Hospital.—Dr. Henry C. Chapman, for thirty-two years professor of medical jurisprudence and physiology in Jefferson Medical College, has resigned, to take effect in June next.

Homecoming Week at the University.—Arrangements are being made by the Medical Department of the University of Pennsylvania for holding the first annual "Homecoming or Progressive Medicine Week" during the Easter vacation. A program is being prepared with the intention of having the head of each department in the medical school show by lectures and clinics the world's recent progress in medicine. Alumni of the school will be asked to cooperate by giving lectures and demonstrations on special subjects. Part of the time is to be taken up by the sessions of the Undergraduate Medical Association. Arrangements are being made to hold the annual banquet at that time and efforts are also being put forth to induce the various medical classes to hold their reunions during the homecoming week.

Charitable Bequests.—The will of the late Dr. William J. Earhart devises \$5,000 each to the medical, surgical and maternity departments of the Women's Homeopathic Hospital; \$5,000 to the Children's Homeopathic Hospital for the endowment of a free bed to be known as the Dr. Jacob R. Earhart memorial bed; \$5,000 to the Hahnemann Hospital; \$5,000 to the Southern Homeopathic Hospital for free beds, and the latter institution also receives an additional \$5,000 for the maintenance fund. The will also contains a bequest of \$5,000 to St. Luke's Hospital for the support of a free bed.—The will of the late Sarah E. Kolb contains a bequest of \$5,000 to the German Hospital for the support of a free bed and of \$5,000 to the Philadelphia Home for Incurables to be used for a similar purpose. The will also bequeathes \$1,000 to the German Home for the Aged.—The will of the late Sarah D. Shur contains a bequest of \$1,000 to the Methodist Hospital.—By the Portrait Ball held in the Academy of Music, December 31, \$8,000 was realized for the Hospital of the University of Pennsylvania.

Meetings and Elections.—The annual meeting and banquet of the Association of Ex-Resident and Resident Physicians of the Hospital of the University of Pennsylvania, was held December 12. There were 55 members present and the meeting was presided over by Dr. John H. Jopson.—At the annual meeting of the West Philadelphia Medical Association, the following officers were elected: President, Dr. F. Mortimer Cleveland; vice-president, Dr. Sherman F. Gilpin; secretary, Dr. George M. Boyd; financial secretary, Dr. Walter M. Miller; and treasurer, Dr. Edmund L. Graf.—At the annual meeting of the Academy of Natural Sciences, December 18, the following officers were elected: President, Dr. Samuel G. Dixon; vice-presidents, Drs. A. E. Brown and E. G. Conklin; recording secretary and librarian, Dr. Edward J. Nolan; corresponding secretary, Dr. J. P. Moore; treasurer, George Vaux; curators, Drs. A. E. Brown, Samuel G. Dixon, H. A. Pillsbury and Mr. Witmer Stone; and councilors, Drs. Henry Tucker, Charles B. Penrose and Spencer Trotter and Mr. Charles Morris.—At the annual meeting of the Medical Club of Philadelphia, January 15, the following officers were elected: President, Dr. Wharton Sinkler; vice-presidents, Drs. James B. Walker and Dr. Alexander Marey, Jr., Riverton, N. J.; secretary, Dr. J. Gurney Taylor; treasurer, Dr. Lewis H. Adler, Jr.; governor, Dr. L. Webster Fox; and additional directors for one year, Drs. Judson Daland, S. Lewis Ziegler, Walter L. Pyle, George A. Knowles and Wendell Reber.—The West Branch of the Philadelphia County Medical Society has elected Dr. William S. Newcomet chairman and Dr. Charles A. E. Codman secretary.—The Post-Graduate Academy of Medicine of Northeastern Philadelphia has elected the following officer: President, Dr. Elmer E. Keiser; secretary, Dr. Albert C. Buckley; and treasurer, Dr. George C. Hanna.—The College of Physicians has elected the following officers: President, Dr. James Tyson; vice-president, Dr. George E. de Schweinitz; secretary, Dr. Thomas R. Neilson; treasurer, Dr. Richard H. Harte; and censors, Drs. S. Weir Mitchell, Richard A. Cleeman, Louis Starr, and Arthur V. Meigs.

SOUTH DAKOTA

Smallpox Epidemic.—An epidemic of smallpox is said to prevail in Aberdeen, where 18 patients have been taken to the detention hospital. Rigid quarantine is being maintained and every precaution is being taken to stamp out the disease.

Society Meetings.—The annual meeting of the Fourth District Medical Society was held in Huron December 16. Dr. Edward B. Taylor, Huron, was elected president; Dr. Isaac M. Burnside, Highmore, vice-president; Dr. Samuel R. Wallis, Miller, treasurer, and Dr. Charles M. Hollister, Pierre, censor.—At the annual meeting of the Seventh District Medical Society, held in Sioux Falls, December 13, Dr. Thomas J. Billion, Sioux Falls, was elected president; Dr. Ervind Klaveness, Sioux Falls, vice-president; Dr. D. Willard Craig, Sioux Falls, secretary-treasurer; Dr. Earl E. Page, Montrose, delegate to the state society, and Dr. George W. Bliss, Valley Springs, censor.—The Eighth District Medical Society, at its annual meeting held in Yankton, elected Dr. Silas M. Hoaf, Yankton, president; Dr. James L. Stewart, Irene, vice-president, and Dr. Leon F. Beall, Irene, secretary-treasurer.—Mitchell District Medical Society, at its annual session held in Mitchell, elected Dr. E. N. Wager, Bijou Hills, president; Dr. Bert Menser, Bridgewater, vice-president; Dr. William R. Ball, Mitchell, secretary; Dr. Byron A. Bobb, Mitchell, treasurer, and Dr. E. W. Jones, Mount Vernon, censor.—At the annual meeting of Watertown District Medical Society, held in Watertown, December 10, Dr. Horace W. Sherwood, Doland, was elected president; Dr. Stanley B. Dickinson, Watertown, vice-president; Dr. James B. Vaughn, Castlewood, secretary-treasurer, and Dr. William J. Benner, Willow Lakes, censor.

TENNESSEE

Physicians Exonerated.—In the case of Dr. W. H. Holbrook, Chattanooga, charged by the local board of health with not reporting a case of smallpox, the prosecutors failed to prove that the case was one of smallpox, and the accused was discharged.—In the case of Dr. Gideon H. Morgan, Knoxville, charged with a grave offense, the case was thrown out of court without indictments having been drawn.

Tuberculosis Commission Named.—The governor has announced a temporary tuberculosis commission, consisting of the members of the State Board of Health and the superintendent of public instruction, *ex officio*, Drs. William Krauss, Memphis, William D. Sumpter, Nashville, and James L. McKenzie, Grayville; J. W. Scheibler, D.V.S., and Major E. C. Lewis, Nashville, and Messrs. Milton B. Ochs, Chattanooga, and Tom W. Neil, Dyersburg.

Personal.—Dr. J. Clyde Butler, Mountain City, has been made chief surgeon to the National Soldiers' Home, Johnson City.—In an affray at Benton between Drs. Joseph E. Hutchins and Spencer B. McCleary, January 10, both were seriously injured.—Dr. William E. Ragdale has been elected president, Dr. C. M. Beck, secretary, and Dr. Walter R. Wallace, treasurer, of the newly formed Alumni Association of the College of Physicians and Surgeons, Memphis.—Miss Natilee Braine, Knoxville, has returned after three and one-half years of medical study in Europe.—Dr. John A. Witherspoon, Nashville, fractured a rib in a fall down stairs January 14.—Dr. William K. Vance, Bristol, has been appointed chief surgeon of the Virginia and Southwestern Railway.

Society Meetings.—At the annual meeting of the Memphis and Shelby County Medical Society, held December 15, Dr. Gustavus B. Thornton was elected president; Dr. Ernest C. Blackburn, vice-president, and Dr. J. Wesley Brice was re-elected secretary-treasurer, all of Memphis. At the annual banquet Dr. B. F. Turner presided as toastmaster.—At the annual meeting of the Chattanooga and Hamilton County Medical Society, held December 11, Dr. Samuel I. Yarnell was elected president; Dr. William A. Duncan, vice-president; Dr. Hiller P. Larimore, secretary-treasurer, and Dr. Buchanan S. Wert, censor, all of Chattanooga.—Knox County Medical Society, at its annual meeting held December 17, elected the following officers: President, Dr. Samuel D. Acuff; vice-president, Dr. John P. Tillery; secretary, Dr. Samuel H. Hodges; treasurer, Dr. Charles W. Rain; custodian Dr. Thomas ap. R. Jones; member of the judicial council, Dr. Herbert H. McCampbell, and delegates to the state association, Drs. Edward R. Zemp and Chalmers Deaderick, all of Knoxville.

TEXAS

Will Build Memorial Hospital.—The city council, Port Arthur, has donated to John W. Gates a site on which he will erect, in memory of his mother, a hospital to cost \$20,000.

Quarantine Lifted.—The quarantine which was declared against San Augustine County on account of smallpox, January 5, was declared off by direction of the state health officer, January 9.

Personal.—Dr. Hatch W. Cummings, Hearne, president of the Texas State Medical Association, has appointed the fol-

lowing committee on public instruction to give popular lectures in the state before the laity and others: Drs. David R. Fly, Amarillo, Bacon Saunders, Fort Worth, and Albert Woldert, Tyler.—Dr. John Preston, superintendent of the Epileptic Colony, Abilene, has been appointed superintendent of the State Insane Hospital, Austin, vice Dr. Benjamin M. Worsham, resigned.—Dr. Albert Woldert, Tyler, has been elected chairman of the Smith County Tuberculosis Commission.

Elections.—At the fifty-eighth semi-annual meeting of the North Texas Medical Society, held in Dallas, December 8, 9 and 10, Dr. Joseph W. Largent, McKinney, was elected president; Dr. Joseph A. Gracey, Fort Worth, vice-president; Dr. H. Leslie Moore, Dallas, secretary, and Dr. F. Marion Teas, Denison, treasurer. Greenville was selected as the next meeting place.—At the semi-annual session of the South Texas District Medical Society, held in Beaumont December 10 and 11, Dr. J. Mark O'Farrell, Richmond, was elected president; Dr. Oscar L. Norsworthy, Houston, vice-president, and Dr. Edward F. Cooke, Houston, secretary-treasurer (re-elected). Houston was selected as the next meeting place.—At the annual meeting of Austin District Medical Society, held in Austin December 17, the following officers were elected: President, Dr. Matthew A. Taylor, Austin; secretary, Dr. L. B. Bibb, Austin, and censors, Drs. S. E. Hudson, Washington A. Harper and Howard B. Granberry, all of Austin, James C. Anderson, Granger, and Edward M. Thomas, Georgetown.—At a meeting of physicians of Parker and Palo Pinto counties held in Weatherford December 15, the two county societies were merged into one, to be known as the Parker-Palo Pinto County Medical Society. The following officers were elected: President, Dr. Charles B. Williams, Mineral Wells; vice-presidents, Drs. Alexander S. Garrett, Springtown, and James H. McCorkle, Gordon; secretary-treasurer, Dr. James H. Eastlund, Mineral Wells, and censors, Drs. Alfred Irby and Alexander R. Kuykendall, Weatherford, and Berry L. Jenkins, Lyra.

WISCONSIN

Health Board Fined.—The members of the Health Board of Arland are reported to have been fined \$25 for violation of regulations prescribed by the State Board of Health in regard to communicable diseases.

Personal.—Dr. William J. Griffin, physician at the La Pointe Reservation, has resigned and will take up postgraduate work abroad.—A. U. Jorris, LaCrosse, the osteopathic member of the State Board of Medical Examiners, has decided to resign, but will serve until the vacancy is filled.—The residence of Dr. Herbert B. Tanner, Kaukauna, was damaged by fire to the amount of \$1,000 New Years Day.

Tuberculosis Suggestions.—The Antituberculosis Committee of the Associated Charities, Eau Claire, has issued a card for free distribution for the guidance of the Visiting Nurse's Association and the general public, compiled and recommended by the Eau Claire Medical Society, entitled "Suggestions and Rules Regarding Tuberculosis." It deals with the care of the sputum, the care of rooms, and personal hygiene, including diet.

Illegal Practices.—In the case of W. C. Bullard, Milwaukee, charged with immoral, dishonest, and unprofessional conduct, the defendant is said to have been convicted in the circuit court at Portage. Unless a motion for a new trial is granted, his license to practice medicine in the state will be revoked.—In the case of Dr. D. F. O'Brien, La Crosse, who is said to have pleaded guilty of administering drugs and using instruments in violation of the law, the defendant is said to have been fined \$500 and costs in the circuit court at Viroqua.

Society Meetings.—At the annual meeting of Douglas County Medical Society, Dr. John Baird was elected president; Dr. Lewis Moody, vice-president; Dr. Thomas J. O'Leary, secretary-treasurer, and Dr. Lyman B. Sheehan, censor, all of Superior.—Dr. George F. Adams has been elected president; Dr. John H. Cleary, vice-president, and Dr. Palle P. M. Jorgenson has been re-elected secretary-treasurer of the Kenosha County Medical Society, all of Kenosha.—At the annual meeting of the Milwaukee County Medical Society, December 15, Dr. William H. Washburn was elected president; Dr. L. F. Germain, vice-president; Dr. Alfred W. Gray, secretary, and Dr. Joseph Kahn, treasurer, all of Milwaukee.—The Rock County Medical Society, at its annual meeting, elected Dr. John F. Pember, Janesville, president and alternate delegate to the state medical society; Dr. Arthur C. Helm, Beloit, vice-president; Dr. Edward B. Brown,

Beloit, secretary-treasurer; Dr. Guy C. Wausle, Janesville, censor, and Dr. Lewis F. Bennett, Beloit, delegate to the state medical society.

GENERAL NEWS AND COMMENT

Tour to the International Medical Congress.—A Cook tour to the International Medical Congress, Budapest, next August, is being arranged by Dr. Charles Wood Fassett, St. Joseph, Mo., from whom full information may be obtained on application.

Coming Meeting.—The spring meeting of the Medical Society of the Missouri Valley will be held in St. Joseph March 18 and 19, under the presidency of Dr. C. B. Hardin, Kansas City. Dr. Nathan S. Davis, Chicago, will deliver the address in medicine, and Dr. Herman J. Boldt, New York City, the address in surgery.

Data on the Stone Age.—Mr. Warren K. Moorhead, curator of the Department of Archeology of Phillips Academy, Andover, Mass., requests that physicians send him descriptions of abnormal crania from mounds and other prehistoric burial places, to be used in his forthcoming work on "The Stone Age," which will be an encyclopedia of the implements, ornaments, weapons, etc., of the prehistoric tribes of the United States, together with a bibliography of the subject.

Cholera in the Philippines.—During the week ended October 31, 642 cases of cholera were reported in the Philippine Islands, with 365 deaths. The deaths and number of cases were about 25 per cent. less than the preceding week. A recrudescence of the disease was noted in Laguna, where 37 cases were reported; the disease has made its appearance in Leyte, has gradually spread up the west coast of Luzon, and has appeared in Ilicos Norte, where 73 cases were reported during the week.

Society Meetings.—The New England Alumni Association of New York Medical College held its annual meeting and banquet at Young's Hotel, Boston, December 29, and the following officers were elected: President, Dr. Frank A. Hubbard, Taunton, Mass.; vice-presidents, Drs. Herbert McIntosh, Boston; Elgin W. Jones, Lynn, Mass.; and Ira J. Prouty, Keene, N. H.; secretary, Dr. Roy D. Young, Arlington, Mass., and treasurer, Dr. James H. Stuart, Boston.—At the annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, held in Indianapolis, November 10 and 11, the following officers were elected: President, Dr. William F. Drewry, Petersburg, Pa.; vice-presidents, Hon. William C. Graves, Springfield, secretary of the Illinois State Board of Charities, and Thomas C. Fitzimmons, Carbondale, Pa., and secretary-treasurer, Dr. J. F. Monson, Sonyea, N. Y.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 29, 1908.

The Medical Treatment of London School Children

The London County Council has appointed to inquire into the medical treatment of London school children, a committee consisting of the following educationalists and representatives of medical institutions: Mr. N. G. Bennett (British Dental Association), Sir Victor Horsley (British Medical Association), Dr. Stanley Phillips (Central Hospital Association Council for London), Dr. Charles Gray (Charity Organization Society), Lord Cheylesmore (Metropolitan Hospital Sunday Fund), Mr. Douglas Owen (London Hospital), Mr. J. R. Bland (London Ophthalmic Hospital) and Dr. H. M. Fletcher (St. Bartholomew's Hospital). This committee has issued a most exhaustive and important report under the following heads: teeth, vision, ringworm, favus, suppurating ears and adenoids, tuberculosis, and general debility. At least 90 per cent. of the children are in urgent need of dental treatment because of neglect of proper feeding and hygiene during infancy and childhood. Of 245 children, only three used a toothbrush. For the caries so prevalent the existing accommodation in the hospitals and dispensaries is inadequate. Provision should be made for the simple dental treatment of school children; that instruction in the hygiene of the teeth should be given both to the children and to their parents.

It is computed that about 60,000 children in the schools suffer from defective vision. The hospitals can deal with only a small proportion of the children so affected. It is recommended that additional provision be made for the treatment in the vicinity of the school of all children suffering from errors of refraction.

Ringworm is common all over London. The loss of school attendances in London from this disease is calculated at

1,179,934 attendances per annum. The cure by lotions and ointments occupies many months and in some cases even seven years, while rapid cure with freedom from infection can be produced by the x-rays. As the provision for this treatment in the hospitals is limited it is recommended that a fixed center or centers be established for this treatment and that the attendance of children shall be made compulsory as soon as the disease is discovered.

Favus is seldom found in London except in the children of aliens. The treatment of favus has resulted in 37 per cent. of cures, which is considered satisfactory.

For cases of adenoids and otitis media requiring operation the hospitals are adequate. Cases of chronic otitis occur in about 1 per cent. of children, especially among those living in insanitary surroundings. It is recommended that provision be made in the vicinity of the school for the treatment of these children.

Many children suffer from general debility, often due to poverty. It is recommended that further provision be made on the lines of the existing open-air schools to which debilitated children can be admitted for short periods.

Two propositions have been considered: one, that the council should make arrangements with the existing hospitals and dispensaries for the treatment of children; the other, that it should establish school surgeries or clinics. The existing hospitals can not adequately provide the treatment required, and even if this were attempted the efficiency would be less than that provided in the school surgery or clinic specially equipped for the purpose. It is recommended, therefore, that such clinics be established in the center of groups of schools and the treatment furnished by school medical officers.

Physician Prosecuted for Failing to Diagnose Scarlatina

The prosecution of Dr. H. B. Dickinson, one of the leading practitioners of Hereford, is an extraordinary example of official perversity. Dr. Dickinson was doubtful as to the diagnosis in a case which he was attending but suspected scarlet fever. Accordingly he took the necessary precautions as to isolation and disinfection until the diagnosis of scarlet fever was established, and then duly reported the case to the health authorities and had the patient sent to the hospital. He was summoned for not having complied with the law that cases of infectious disease shall be reported "forthwith." The fight was a stubborn one. Dr. Dickinson, who was ably defended by the Medical Defence Union, barely escaped with an acquittal, being deprived of his costs. These proceedings are monstrous. If, when in doubt, a doctor reported a case of scarlatina and the patient were removed to a fever hospital he would render himself liable to an action for damages for exposing the patient to infection if the case proved to be something other than scarlatina.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 22, 1908.

Congresses as a Financial Burden

Congresses may be classed in two groups, those of merely professional interest, and those which address themselves more to the general public. The first lead a modest existence, come and go without noise, and their proceedings are scarcely noticed in the public press. In contrast to these is the other group, the preparations for which and the proceedings are published in the daily papers as news, and the transactions spread abroad. These latter congresses demand the attention of the authorities of the cities in which they are held, and the municipality feels itself in duty bound to prepare for the congress an especially ceremonious reception. This practice imposes on the cities a not inconsiderable financial burden, a circumstance that gives occasion for complaint in more than one direction. From an article published in the *Deutsche medizinische Wochenschrift*, No. 48, it appears that the expenses which are occasioned to the cities by receiving congresses occasionally assume quite unexpected proportions. The city of Berlin has expended in the last twenty-five years for medical and allied congresses about 200,000 marks (\$48,000) among which were about 71,000 marks (\$17,040), each for the Association for the Advancement of Science--Naturforscher Congress, in 1886, and the International Medical Congress in 1890. During the same time about 100,000 marks (\$24,240) were paid out for non-medical congresses in Berlin. The appropriations which other cities have made for the Naturforscher congresses in the last twenty-five years have averaged less, to be sure, but amount to quite im-

portant sums. At Carlsbad in 1902, the congress cost the city not less than 140,000 kroner (\$34,000). The chief part of this expense after the *Festschrift*, the souvenir book, is occasioned by the banquets. Meran expended on the festivities in honor of the Naturforscher congress in 1905 not less than 92,000 kroner (\$22,300). Quite properly it has been pointed out that these appropriations are in no relation to the real worth of the entertainment, and that the money might be applied to more useful objects. It has come to a point where many cities which are not able to entertain in this manner decline to receive congresses on this ground, and so a congress often finds difficulty in the choice of its next place of meeting. Quite properly the demand has been made that the cities be no longer subjected to so great expense and that the committee of organization of the congresses adopt resolutions to this effect. Indeed the officers of the German Public Health Society have already voted not to accept any longer the invitations of the city authorities to official dinners, and it is very much to be desired that this example find imitators.

The Dispensary Question

The misuse of the dispensaries by patients able to pay is quite as great in our country as in other countries, especially in England and America. Efforts to correct this abuse and to reserve the dispensaries exclusively for the poorer population have been made for several decades, but only lately have they been able to show any success of consequence. Nothing is to be obtained here by legislation, although I am informed that a bill for this purpose has been passed in one of the United States. With us, as in England, France and Austria, physicians are bestirring themselves, in the direction of self-help to correct the dispensary abuse. In 1906 in Austria the government issued the following order with regard to the out-treatment of patients in the Vienna public hospitals: "The dispensaries are institutions for free medical treatment of needy patients. While the dispensaries are intended only for the needy patients no one will be refused the distinctly necessary first medical aid, and the authorities of the dispensary have the right, in case of necessity, to have the patient who has come under treatment, report a second time for the purpose of further examination. The patient requiring aid from the dispensary who is not in the position to show legal evidence of poverty should bring a certificate from the poor-law board regarding his neediness. Exceptions to the necessity of showing evidence of need are permissible: (a) If new methods of treatment are distinctly demanded with such apparatus as is not at the time at the disposal of private physicians; (b) in the ambulatory treatment of patients, of the third poor-law class; (c) if an especially tedious ambulatory treatment must be applied, which requires the knowledge of a specialist. Persons who have sick insurance are in general excluded from treatment in the dispensaries, and may be admitted only when they come with an order from the physician of the sick benefit society. The necessity for restriction of this imposition, especially in Berlin, is shown by the fact that 145,000 patients were treated in 1905 in 20 of the state polyclinics of this city. Among these patients there are occasionally found well-to-do people from Berlin and the surrounding country. The evil is recognized by the government, and in this respect the late ministerial director, Althoff, was outspoken. In 1904 the following notice was posted in the treatment and waiting rooms of the university polyclinic for diseases of the throat and nose, with the consent of the department of education: "The university polyclinic for throat and nose diseases provides free medical treatment with the distinct understanding that (with the exception of course of cases in which there is danger in delay) only such patients shall apply for treatment as are in circumstances which do not permit them to obtain medical treatment in any other way. On the other hand, the actual cost of the medicines, etc., is to be borne by the patients who require them, and for this purpose a weekly contribution of 25 pfennige (6 cents) is required. In exceptional cases even this contribution may be remitted by the director."

A few weeks ago further progress was secured in this field by an agreement between the representatives of the medical profession of greater Berlin and the directors of most of the surgical polyclinics of the state and city hospitals. The regulation agreed on is as follows:

1. In public dispensaries no payment for medical treatment is to be taken, but compensation for the expenses is permissible. First medical aid in emergencies does not involve dispensary treatment.
2. The dispensary physicians are not to

deliver certificates entitling the insured to sick benefits. 3 (a). In public dispensaries only needy patients shall be treated. (b). Notice of these regulations shall be given to the dispensary public by placards in the public polielinics. (c) The directors of public polielinics shall inform themselves, in doubtful cases, with regard to the means of those applying for treatment in the polielinics. 4. It should be explained to physicians that so far as possible they should not send the sick to the city dispensaries.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 31. 1908.

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Reform of Criminal Statistics

The compiling of criminal statistics has long been confined to recording the age, sex, profession and degree of instruction of delinquents and criminals. As these points furnish only very insufficient data for appreciation of the causes of criminality, considerable progress was made two years ago when it was determined to investigate the part played by alcoholism as an exciting cause of crime and minor offenses, but not all the precision that was to be desired was brought to this investigation. The minister of justice has recently addressed to the state's attorneys the *procureurs généraux*, a circular destined to bring about a complete reform in criminal statistics. Henceforth these statistics will be compiled, no longer by means of retrospective examination of the legal proceedings, but by the aid of individual records on the card index system (*fiches individuelles*), which will be kept for each accused person and which will be filled out as the trial proceeds. These records have been designed in such a manner as to permit research on the etiology of criminality under conditions of precision hitherto unknown. Under the head of "alcoholism" will be indicated in the record whether the accused is affected with alcoholism properly so-called, either hereditary or acquired, or whether he is only a drunkard, habitual or

occasional, thus taking care not to confound alcoholism with drunkenness. Besides alcoholism, moreover, will be noted in the records all other physical defects revealed by the official inquiry which precedes the trial, or at the trial itself, if these defects are of such a nature as to exert an influence on criminality.

Closing of the Medical School to Students of the First and Second Years

In consequence of the disturbances to which the course of Prof. Nicholas had given rise, the minister of public instruction has just issued a decision whereby the faculty will remain closed to students of the first and second years until March 1, 1909. This decision, the effect of which will be considerably to retard the studies of these young men, has aroused numerous protestations; the more so that the manifestations by which it had been brought about were coming to a spontaneous end. It is hoped that the minister will not hesitate to reverse so rigorous a decision.

Women at the Competitive Examination for Hospital Internes

For some ten years the number of women externes of the Paris Hospitals who face the difficult tests of the competitive examination for internships has been steadily increasing. This year twenty-five are competing, an unprecedented number. Since the first test, however, four have withdrawn from the competition.

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(From Our Regular Correspondent)

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The Army Medical Corps

Political difficulties and the possibility of war have recently aroused unusual public interest in the army, and investigation has revealed the insufficiency of the present medical provision for war. Under a bureaucratic régime the medical corps has long been neglected. The financial position of the staff surgeon has not improved for thirty years, while the cost of living has risen 60 to 80 per cent. Private practice and public civil appointments offer better inducements to the recent graduate than does the army. Thus, there are now only 1,024 surgeons for 313,000 of the rank and file, or 1 doctor for each 305 men—a proportion which compares badly with that in the German and Italian armies. The present war scare has caused the minister of war to contemplate (but, so far, only to contemplate) improvements in the pay and rank of army surgeons to induce the enlistment of a sufficient number of qualified men. The lesson of the Russo-Japanese war seems to have been wasted on us!

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The director of the second ophthalmologic clinic, Prof. Isidor Schnabel, well known to all American doctors studying in Vienna, fell near the entrance to his lecture-hall in the General Hospital; the nurses who saw him fall found, on reaching him, that life was extinct. Schnabel was 66 years old; had never been ailing, had led a very active life, and was loved and esteemed by his pupils and patients. An unusual gift of rhetoric, keen observation, a talent for exact criticism, and an indomitable love of freedom combined to make an unusual character, which has left its impress on his contemporaries and on his specialty.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

VERONAL-SODIUM AND MEDINAL

W. A. Puckner and W. S. Hilpert

Veronal is a trademarked name for diethylbarbituric acid, a condensation product of diethylmalonic acid and urea which has come into somewhat extended use.¹ A sodium salt of this acid has recently been offered to the medical profession by two different firms, one, the makers of Veronal—the Farbenfabriken of Elberfeld Co.—calling the product Veronal-sodium, and the other—the Chemische Fabrik auf Actien, Berlin—giving it the name of Medinal. Both Veronal-sodium and Medinal having been submitted to the Council, their examination was taken up by us in the Association laboratory. It was found that the composition of both brands of this salt agreed with the statements made and it appeared to be a definite chemical substance.² A claim made for one of these products, however, is open to criticism. In submitting Medinal to the Council the American agents, Schering and Glatz, stated—and the same statement is made in the advertising matter—that Medinal is “soluble even in cold water to the extent of 20 per cent.; with the aid of heat 30 per cent. solutions, permanent in the cold, may be prepared.” This statement is, on the face of it, a contradiction of a well-known physical law. Under ordinary conditions, if hot water is saturated with a substance more soluble in hot than in cold water, when the water is cooled the substance will separate out until only the amount which is soluble in cold water remains. Experiments to determine the solubility of Medinal showed that a solution saturated at a temperature of 5 C. contains 6.08 per cent. of the substance by weight, at 15 C. a saturated solution contains 16.87 per cent.; at 25 C. it contains at saturation 17.18 per cent., while at 91 C the point of saturation was reached when 32.5 per cent. of Medinal had been dissolved. Water at 91 C. saturated with Medinal and filtered while hot, when cooled to 25 C. in a thermostat and filtered was found to contain only 17.35 per cent. Medinal. The statement that a 30 per cent. solution of Medinal is permanent in the cold is, therefore, incorrect.

THE COMPOSITION AND RELATIVE VALUES OF MEAT EXTRACTS

An Examination by Government Chemists of Meat Extracts and Similar Preparations

The Bureau of Chemistry of the Department of Agriculture has recently given in Bulletin No. 114 much new and valuable data regarding the commercial meat products. The work contained in this bulletin is practically an elaboration or continuation of that published in THE JOURNAL of May 11, 1907, p 1612. It was taken up to determine the condition and quality of meat preparations in general and from the results obtained to prepare tentative standards for the preparation and composition of such meat preparations. The results as well as the methods of analysis of many meat products are given, showing the composition and relative value of the various preparations. The comments of many investigators regarding the food value of such products is also a valuable contribution to the knowledge of meat extracts, and will help in deciding the real value of the preparations.

The preparations taken up are divided into three general classes: (1) Solid and Fluid Meat Extracts; (2) Meat Juices; (3) Miscellaneous Preparations. For each of these the tentative standards submitted by the Committee on Food Standards of the Association of Official Agricultural Chemists are given along with the tabulated results of the chemical

analysis. The preparations examined showed, for the most part, that they conformed to the standards, and only those which are at variance in one or more particulars will be mentioned in this review.

SOLID MEAT EXTRACTS

For solid meat extracts the following are the requirements:

“Meat extract is the product obtained by extracting meat with boiling water and concentrating the liquid portion by evaporation after removal of fat, and contains not less than 75 per cent. total solids of which not over 27 per cent. is ash and not over 12 per cent. is sodium chlorid (calculated from the total chlorine present), not over 0.6 per cent. is fat and not less than 7 per cent. is nitrogen. The nitrogenous compounds contain not less than 40 per cent. of meat bases and not less than 10 per cent. of kreatin.”

With the above as the standard, several of the solid meat extract preparations examined were not up to grade on one or more points, though in some cases it is true they were very slightly below the standard set. The following products were found wanting in some respects and the requirements which they failed to meet are given:

“REX” BRAND BEEF EXTRACT (Cudahy Packing Co., Omaha) contained 26.50 per cent. water instead of the standard 25 per cent.

EXTRACT OF BEEF PREMIER (Libby, McNeill & Libby, Chicago) contained 30.92 per cent. of ash instead of the standard 27 per cent.; 18.32 per cent. of sodium chlorid (standard, 12 per cent.); 6.02 of nitrogen (standard, 7 per cent.).

BEEF EXTRACT (Swift & Co., Chicago) contained 13.51 per cent. sodium chlorid (standard, 12 per cent.); 6.60 per cent. nitrogen (standard, 7 per cent.).

BEEF EXTRACT, CORN SPECIAL (G. H. Hammond Co., Hammond, Ind.) contains 13.25 per cent. of sodium chlorid (standard, 12 per cent.); and 6.86 per cent. nitrogen (standard, 7 per cent.).

With these few exceptions, the solid meat extracts were found to comply with the standards given.

FLUID MEAT EXTRACTS

For fluid meat extract the following standards have been suggested:

“Fluid meat extract is identical with meat extract except that it is concentrated to a lower degree and contains not more than 75 per cent. and not less than 50 per cent. of total solids.”

According to this standard all excepting one of the fluid meat extracts examined were found to be below grade in one respect, that of solids. The following are preparations examined and the percentage of solids found:

	Per cent.
CONCENTRATED FLUID BEEF EXTRACT (Armour & Co., Chicago)	42.25
MEAT JUICE (Valentine's Meat Juice Co., Richmond, Va.)	42.36
BEEF JUICE (John Wyeth & Bro., Philadelphia)	41.16
VIGORAL (Armour & Co., Chicago)	50.06
“REX” FLUID BEEF EXTRACT (Cudahy Packing Co., Omaha)	44.01
FLUID EXTRACT OF BEEF (Cibolis Co., New York)	35.37
FLUID BEEF JELLY (McSquerra-Julia Food Co., Detroit)	31.03

Special notice is directed to the price of some of these preparations, which in spite of their large water content, are higher priced than some of the solid meat extracts.

MEAT JUICES

The following is given as the standard for preparations of meat juice:

“Meat juice . . . is the fluid portion of muscle fiber obtained by pressure or otherwise, and may be concentrated by evaporation at a temperature below the coagulating point of the soluble proteins. The solids contain not more than 15 per cent. of ash, not more than 2.5 per cent. of sodium chlorid (calculated from the total chlorine present), not more than 4 per cent. nor less than 2 per cent. of phosphoric acid (P_2O_5), and not less than 12 per cent. of nitrogen. The nitrogenous

¹ This substance is official in the Swiss pharmacopeia (Pharm. Helv. ed. 4) as Aeidum diethylbarbituricum, and in the British Pharmaceutical Codex it is described under the name Malourea (malo urea). It is also known under the proprietary name Malonal.

² A reprint of this article containing in addition the analytical data will be mailed on receipt of 2 cents to cover postage.

deliver certificates entitling the insured to sick benefits. 3 (a). In public dispensaries only needy patients shall be treated. (b). Notice of these regulations shall be given to the dispensary public by placards in the public policlinics. (c) The directors of public policlinics shall inform themselves, in doubtful cases, with regard to the means of those applying for treatment in the policlinics. 4. It should be explained to physicians that so far as possible they should not send the sick to the city dispensaries.

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tuberculin test has been given, followed by a demonstration of the lesions to be found in reacting animals. Such demonstrations have been given for the last ten years. They have also been held in connection with the Farmers' Course, which is attended each winter by from 600 to 800 farmers from all parts of the state.

The interest which was aroused by these demonstrations and the results which followed in the widespread use of the test by the individual farmers, led to the giving of more public demonstrations by the state authorities in connection with the state fair, with county fairs, at farmers' institutes and at county agricultural schools. For the last five years a considerable number of such demonstrations have been given annually. The demand for them has been far in excess of the available time and funds of the state authorities.

The main phase of the question brought out in connection with these demonstrations has been the financial rather than the hygienic. The farmer was informed of the loss he was certain to incur if the disease were present in his herd and no effort were made to eradicate it. He was told of the danger of purchasing diseased animals and of feeding mixed creamery skim milk to his calves and hogs. He was shown apparently healthy animals, which had reacted to the test. These were slaughtered in his presence and the lesions demonstrated.

An effort has always been made to show animals having the disease in the early stages and also in animals having generalized tuberculosis. These demonstrations have always resulted in a large number of herds being tested. These tests have been voluntary in every case. In some of the counties in which the public demonstrations have been most numerous, from 10 to 60 per cent. of the milk cows have been tested.

At the International Congress on Tuberculosis, photographs of the public demonstrations, given in various parts of Wisconsin, charts showing the number of such demonstrations given annually, and maps of the state illustrating the results of the demonstrations on the use of the tuberculin test, were shown in the Wisconsin exhibit. This line of work has been emphasized because the state authorities have believed that when the farmer is convinced of the economic importance of bovine tuberculosis, he will act, and the hygienic phases of the question will be solved because of his effort to protect himself. Cities then will not have to provide elaborate machinery for the enforcement of the ordinances requiring that cattle be tested, for, to save his own herd, every farmer will enforce it for himself. There is one creamery in Wisconsin, and we presume it has the unique distinction of being the only one in the United States, every patron of which has voluntarily tested his herd.

If bovine tuberculosis is ever to be eradicated in this country it will be through the cordial cooperation of the farmer with the state authorities who will teach him the value of the tuberculin test and its accuracy by such demonstrations as described by Dr. Devine.

E. G. HASTINGS, Madison, Wis.
College of Agriculture, University of Wisconsin.

Patenting Surgical Devices

To the Editor:—In THE JOURNAL, May 9, 1908, I contributed a paper entitled "Practical Cystoscopy," incidentally describing and explaining therein my latest model of examining and catheterizing cystoscope, named the "universal," which had first been introduced in 1906. In the paper I failed to mention the name of the manufacturers of the instrument, which, in the light of subsequent events, I believe to have been an unfortunate mistake on my part.

In attending the Chicago session of the Association, a month after the publication of the paper, my attention was called by a surgeon friend to several practically worthless cystoscopes being offered for sale by some of the exhibiting dealers under the name, the "Bransford Lewis Universal Cystoscope." We examined a number of these instruments and found them to be inaccurate and lacking in every particular in the attainment of the several objects supplied by

the instruments being made under my direction by the authorized makers, the Kny-Scheerer Co., 401 West Twenty-seventh street, New York City.

Were I alone involved in the consequences of what must necessarily prove unfair treatment of the profession, I should probably have nothing to say about it; but when medical friends and correspondents tell me of having purchased and found wanting such spurious instruments, under the assurance that they were correctly and properly made, I feel that I should be doing them as well as others in the profession a material injustice in maintaining silence, aside from inviting obliquely and condemnation for myself.

In developing an intricate instrument of this sort, in determining the harmonious adjustment of its several parts, the construction and setting of its lenses, provision for irrigation, ureter-catheterization, etc., it is needless to say that numerous conferences, reviews and criticisms must be exchanged between the designer and the maker before a practical, serviceable and satisfactory product can be evolved; and it is obviously impracticable for such conferences to be carried on with several different instrument makers at the same time.

It is necessary, therefore, that one capable and conscientious maker be selected to manufacture and sell the instrument to the advantage of all parties concerned: the author of the device, on whom credit or blame must fall, according to the merit of the product; the physician or surgeon who buys and uses it—with success or failure, for the same reason; the patient on whom it is used, with benefit or injury; and finally, the legitimate manufacturer himself, who is necessarily subjected to the expenditure of much time and money, preliminary to the completion of untried plans and designs. Deviation from such a course can only bring injury, disappointment and distrust to all concerned, with one exception, the interloping, unauthorized imitator or maker of the device. Him alone does it seem to benefit, and his profit must needs be short-lived, at best.

The profession itself in its individual membership must be the greatest sufferer from interloping of this kind, and yet it makes practically no provision to protect itself.

Is this not a subject well worthy the attention of those in whose hands the destinies of our Association lie?

In addition to the specific interdiction of the Principles of Medical Ethics (Chap. II, Art. I, Sec. 8), there is widespread and deep-lying sentiment against the patenting of surgical instruments by a member of the profession. It is hardly deemed proper for him to receive monetary compensation for his talent or his pains. The product of these, in the shape of a surgical instrument or device, he must bestow freely and without reservation "for the benefit of humanity."

And yet experience does not prove that the patenting of devices redounds to the injury of humanity, or that their non-patenting promotes humanity's interests. It is a well-established fact that the patenting of a device permits and actually leads to the cheapening of its sale price and without lowering its standard of excellence—the vastly greater number made insuring better workmanship, better materials and better output, justified by the greater commercial field, that are awaiting it.

In my opinion, from whatever standpoint we view it, the same conclusion must be reached: Failure to furnish some means of control and protection for its members by the profession brings about consequences injurious alike to the originator of an instrument, to its legitimate manufacturer, to the member of the profession who buys it, to the member who makes use of it, and to the patient on whom it is to be used, i. e., humanity. The only one who reaps the benefit of such insecure and unreasonable conditions is one deserving no such consideration at our hands, the irregular and not over-scrupulous maker who rushes into the field, makes and sells imitations of an instrument before its maturing and completion, even by its author; modifies it, "improves" it according to his own ideas; uses the author's name if he likes, or if better suited to commercial purposes he discards that name and applies either his own or some other in alliance with him—all in total disregard of the author's directions.

protests, wishes or interests. These are as nothing compared to the interests of commercialism.

In the past ten years I have been through experiences such as these several times and have had no means of recourse, either for myself or for members of the profession.

BRANSFORD LEWIS, M.D., St. Louis.

The Causes and Treatment of Backache in Women

To the Editor:—Dr. Leon F. Garrigues, in his article with the above title in THE JOURNAL, January 2, has omitted one of the most important causes of backache, namely a peculiar chronic periostitis of one of the spinal processes, generally of a lumbar or sacral vertebra. The affection, according to my experience, is by no means a rare one, but very few physicians seem to recognize it. The characteristics are circumscribed pain on pressure on the affected process. The pain is present especially during the night when the patient is in a warm bed or on awakening in the morning; there is less or no pain during the day while the patient is about. There is slight elevation of temperature in the evening. The pain radiates sideways or downward; never ceases on its own account, but lessens and gradually will cease entirely under treatment for periostitis, which in this affection is one application of two leeches close to the spinal process from which the pain proceeds, and this promptly secures decided relief. The next step is painting the skin surrounding the affected spinal process once a day with tincture of iodine and internally iodid of potassium. According to my experience, this treatment has to be continued for a long period, because the pain, although continually diminishing, will only cease completely in the course of time.

The benefit experienced by the patient can not be overestimated. She is no longer treated for some uterine trouble which in reality does not exist or has nothing to do with the periostitis; and a constant drain on the system, leading to grave symptoms is gradually removed. The affection is easily recognized by pressing with the finger along the spine on all the processes and finding that one and one only of these processes is painful on pressure, and when, as stated, the pain is worse during the night. I have had over thirty years' experience with this peculiar affection, but except Dr. A. Jacobi, who first called my attention to it, I know of no physician who has written or spoken about it. How many women may be treated, often heroically, for uterine troubles, who suffer from nothing but this periostitis. I am not prepared to say anything concerning the etiology, but confine myself to the statement of facts.

A. ROSE, New York.

Commercial Piracy of Scientific Work

To the Editor:—Our attention has just been called to the unauthorized use of an abstract of our report on "Chloral, Isopral and Bromural," as a "paid-reading notice" in the advertising pages of medical journals. In the interest of independent pharmacologic research, we take this occasion to register a protest against this common abuse. When an investigator publishes a report of his work, he makes his results common property, and thus voluntarily renounces his personal rights as to his results; but he does not thereby renounce his moral right to control the uses to which his report may be put. This right must be conceded, not only as a matter of justice to the man who has done the work and bears the responsibility, but also as an essential condition for independent scientific research. There can be no true liberty of research when the investigator must live under the fear that his name will be abused and his work misrepresented. The moral sense of the profession must protect these rights, which cannot be enforced by any other means. This principle applies strongly to the so-called "abstracts" which are prepared by the employes of manufacturers and published as advertisements. We contend that the unauthorized use of any abstracts for such purposes is reprehensible, since the manufacturers must know that such notoriety is repugnant to most scientific workers. The offense is made even more ser-

ious by the fact that such abstracts very rarely do justice to the views of the investigators. An "abstract" is presented, by its readers, to present fairly the main objects, results and conclusions of the investigator. A fair abstract can only be prepared by one who thoroughly understands the point of view of the investigator. The employe of a commercial house, even if he intends to be honest, cannot be expected to understand the point of view of an independent investigator, since his own training and surroundings are usually so very different. Consequently, these commercial abstracts are, of necessity, partial in nearly every case, partial in both meanings of the word. They misinform the public instead of informing; and they place the investigator, his objects, results and conclusions in a wholly false light.

The present instance illustrates these remarks very forcibly. Our report aimed, above all, to expose the inadequacy of the so-called "scientific evidence" for the claims of a commercial product, and our main conclusions bore on this point. Of this, our principal object, there is not even a mention in the so-called abstract. By this important omission, our attitude toward the subject is totally misrepresented. The whole form and especially the heading of the abstract, is framed so as to imply that the advertisement had been prepared or at least authorized by us—another gross and inexcusable misrepresentation. Pond's Extract is extolled as a certain cure for all kinds of injuries, but the close association of this discredited "patent medicine" with our names (both appearing on the same page of the journal) does not allay the present irritation. It merely illustrates that these methods of advertising are indistinguishable from those which have been so often denounced in the case of "patent medicines."

Manufacturers have often complained that independent investigators do not investigate their products. Do they blame a scientist for harboring small enthusiasm for work which exposes him to the dangers of having this sort of notoriety thrust upon him?

TORALD SOLLMANN, Cleveland, Ohio.

[Professor of Pharmacology and Materia Medica, Medical Department of Western Reserve University.]

ROBERT A. HATCHER, New York.

[Professor of Pharmacology, Cornell University Medical College.]

The Expression of O'Dwyer's Tube

To the Editor:—Some time ago I performed intubation on a child less than a year old, on account of membranous croup. Repeated attempts to extract the tube on the third day in the usual instrumental way, failed. The tube was loosely held within the larynx and every time the closed jaws of the extractor and the guiding finger touched its head, it would sink down out of reach. I was about to give up further attempts for the time being in order to give the child a little rest, when my obstetric sense asserted itself and Credé's method of placental delivery was applied. I was surprised at the ease with which I was able to express the tube out of the larynx and into the mouth, using my left hand for the external manipulation, while the index and middle fingers of my right hand were in the throat ready to receive the delivered tube.

I thought then that I had struck something original in this matter and reported it at the meetings of some medical societies. Before publishing it, however, I thought best to wait for some more experience with this method. The next patient on whom I had an opportunity to try it was a child about 10 years old. In this case, the method failed, but as the thread was left in and the child was very unmanageable, the method was not thoroughly tried. I felt then, that at least so far as young children were concerned I had discovered an additional, practical method of extubation, and saw visions of a permanent place for my name in the literature on intubation under the title of "Golden's method of extubation."

But my determination to wait for greater experience before giving this method to the world has ruined the prospects for the materialization of these visions. I was greatly disappointed to read in THE JOURNAL, Dec. 12, 1908, p. 2032, that this method, under the name of "enucleation," has already

W. W. GOLDEN, Elkins, W. Va.

JOHN E. GOINTHWAIT, M D,
JAMES G. McMILOD, M D,
RICHARD C. CABOT, M D,
JOSEPH H. PRATT, M D,
Boston.

Alcohol a Poison - At the recent meeting of the New York State Conference of Charities and Correction at Elmira Dr. Frederick Peterson, a former head of the State Lunacy Commission was strong in his opposition to alcohol. Dr. Peterson asserts that it is a poison and that if, as is maintained by some, it is a food, it is a poisoned food. As quoted by *Charities and The Commons* (Nov. 29, 1908), he said: 'In the State of New York there are now some 30,000 insane in the public and private hospitals, and it is estimated that 20 per cent of these, or 6,000 patients, owe their insanity to alcohol. In all the asylums of the United States are 150,000 insane, and assuming the same percentage there are 30,000 individuals in this country in whom alcohol has brought about insanity. Alcohol is often a direct cause of epilepsy, but more often epilepsy is due to alcoholism in parents. Thus Bourneville, in a study of over 2,500 idiots, epileptics

and imbeciles admitted to the Bicêtre Hospital, found that over 41 per cent. of them had drunken parents. In the report of the Craig Colony for Epileptics it was found that over 22 per cent. of 950 cases of epilepsy had alcoholic parents. What I want to point out is that the asylums for the insane, the institutions for epileptics, idiots and feeble-minded, the prisons and the county poorhouses are representative, as far as their alcoholic population is concerned, of the extremes of alcoholic indulgence and debauchery. Here alcohol has done its worst to the living individual. Below this topmost wave of ruin and desolation are innumerable gradations of alcoholism down to the moderate drinkers and the temperate or occasional drinkers. The race is reasonably safe from further contamination by those victims of alcohol who are locked away in the retreats that our charitable world provides for them. It is otherwise with the vaster number of excessive drinkers who are free to work any havoc in the social organism about us and who are direct and indirect feeders of the institutions named. It is not a single Jukes family that society has ranged itself against, but against the legions of Jukes families that menace the human stock."

The Diet of the Hindu.—Vegetarians will derive little satisfaction from a recent report by Prof. D. McCay to the Indian government and reviewed in *Nature*, November 12. They have been in the habit of citing the Hindu race as an example of the ability of man to abstain from a flesh diet and yet keep in good bodily condition. Professor McCay finds from his study of the Hindu physique that while the native Bengali maintains nitrogenous equilibrium on his vegetable diet, nevertheless the low nitrogen intake acts deleteriously, reduces the blood protein, and tends to produce degenerative changes, especially in the kidneys. He is not only physically incapable as compared with the European, but he also becomes more easily exhausted, which is not in accordance with vegetarian claims; his blood pressure is below normal, and his lack of stamina makes him an easy prey to infectious diseases. Professor McCay further suggests the possibility or probability of dangerous decomposition products being formed from the large fat and carbohydrate intake rendered necessary by a poor nitrogen diet. Remarking on the extreme prevalence of diabetes in its worst form among the Bengal natives, he attributes it to this carbohydrate excess and asserts that it proves conclusively that the evils from this cause may be more real than those attributed to an excess of protein in the diet. In fact, India is, as *Nature* says, a vast dietetic experimental station, affording in its results, if carefully observed, a far better indication of the effects of low protein diet than could possibly be obtained from experiments under artificial conditions, and lasting only a few months on individuals of the white race. Tropical anemia is probably not exclusively a result of parasitic infection; diet may have more nearly the share formerly attributed to it in the production of the pot-bellied anemic children and adult weaklings who are so conspicuous in many tropical regions. The vigorous African savage has been generally a meat-eater, and if the whites make their homes successfully in the tropics it is probable that the protein intake in their diet will not be radically changed or not greatly reduced to meet the changed climatic conditions.

Teaching the Prevention of Tuberculosis to Children.—An important position in the antituberculosis crusade must be assigned to the educational methods inaugurated in the public schools. A pamphlet entitled, "Simple Lessons on Tuberculosis or Consumption," suitable for children of the seventh and eighth grades, has been prepared by Dr. M. J. Rosenau, Dr. E. C. Schroeder, and Emil Berliner under the direction of the Committee for Prevention of Consumption of the Associated Charities, Washington, D. C., of which Gen. George M. Sternberg is chairman. Bertha L. Stark, in the *Journal of the Outdoor Life*, September, 1908, describes the methods employed in the Pittsburg schools. The work is divided into three parts; lectures, literature and exhibitions. The cooperation of the teachers is first secured and the lectures are given to all pupils above the third grade, the subject-matter being the same for all grades, but the treatment being varied to suit

the locality and grade. A cardboard folder is distributed to the children and a pamphlet to the teachers. Probably the most effective aid in this instruction is given by the exhibitions. These are five in number and consist of a collapsible wooden frame and easel, the frame being covered with canvas on which the pictures are fastened. The frames are rolled up and carried from school to school, and at each school the easel is set up, the frame unrolled, and the pictures fastened on it. The pictures illustrate three principal topics: Tuberculosis as a prevalent disease; as a preventable disease; as a curable disease. At Saranac Lake similar methods have been introduced into the public schools. Cardboard models of unhealthy and of model sanitary sleeping-rooms were exhibited. That the lessons were effective was shown by essays written by the pupils recapitulating the principal facts which the course was intended to teach.

The Biting of Man by Ground-Squirrel Fleas.—The finding of several plague-infected ground-squirrels in California, together with the belief that man has been infected from squirrels, has prompted experiments to determine whether fleas from these rodents would bite man under experimental conditions. Passed Assistant Surgeon George W. McCoy, in *Public Health Reports* (U. S. P. H. and M.-H. S.) gives the results of experiments with fleas collected from California ground-squirrels and allowed to bite human beings. The reaction at the site of the feeding was much more marked than after the bite of the human flea, *Pulex irritans*. A red papule associated with marked itching appeared at the point of each puncture. Traces of the lesion remained for several weeks and itching persisted for ten days. These experiments prove that the common fleas of the ground-squirrels in the vicinity of San Francisco will bite man under the experimental conditions noted. Whether man is actually infected from squirrels through their fleas is a matter that remains to be determined. The Indian Plague Commission believed that infection from the rat flea was probably through dejecta from the flea. In the American experiments it was noted that even during the most prolonged feeding the fleas never ejected blood or feces from the anus.

Differentiation of Abdominal Aortitis.—G. Zagari analyzes the clinical findings in some cases of inflammation of the abdominal aorta, and calls attention to the differential value of the discovery that blood pressure in the arteries of the legs is higher than normal, while persisting normal in the arteries of the arms. This discovery of an equally high or higher arterial tension in the arteries of the foot is a presumptive sign of abnormal conditions in the vessels below the diaphragm. Another instructive sign is the paresthesia of the legs, "as if they were asleep." These sensations are noted early and in one case continued in tormenting fashion during the patients stay in the clinic. The patients complain also of pain in the epigastrium, toward the left side and weakness. On account of the lack of objective symptoms, the disturbances are usually credited to neurasthenia. The aortitis is insidious and essentially chronic, the latent process causing no disturbances until exacerbation follows some intercurrent affection or excessive effort, the symptoms then being generally ascribed to some crisis in the stomach, liver or kidney unless the physician locates the true source of the trouble in the aorta. He gives several tracings of the arterial pressure in his communication which appeared in the *Riforma Medica*, Oct. 19, 1908.

Diphtheritic Paralysis.—Schneider and Vandevre (*Progrès médical*, Aug. 29, 1908) report a case of very extensive paralysis following diphtheria, from which the patient was resurrected (they do not consider this too strong a word) by full doses of antitoxin, 160 c.c. being injected in the course of seven days in three injections of 40 c.c. and two of 20 c.c. respectively. Each injection was followed by a marked improvement as if it neutralized a certain amount of toxin. Schneider and Vandevre say that it seems that subjects thus profoundly intoxicated with the diphtheritic poison have a remarkable tolerance for the serum. The possibility of uncomfortable skin eruptions, etc., following such large doses of antitoxin is of course to be considered, but Schneider and Van-

denote remark that we have, as Netter has shown, a powerful agent to prevent such complications in calcium chloride.

The Battlefield Against Tuberculosis.—The field in which the decisive battle of our future campaign against tuberculosis must be fought is the home; our chief enemy, infection in early childhood; our heaviest gun and our most crying need, camps, "preventoria," for the reception and cure of infected or exposed children before they have become unmistakably tuberculous.—Dr. Woods Hutchinson, New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address but the request of the writer not to publish name or address will be faithfully observed.

THE INJECTION TREATMENT OF HERNIA

To the Editor.—Now and then the general practitioner encounters a patient who has had hernia cured, or at least temporarily relieved, by the so called injection treatment, sometimes by a regular practitioner and sometimes by an advertising specialist. Many members of the profession would be interested to know more about this method, the material that is injected and the results that may be expected. S. W. J.

ANSWER.—The chief difference between the modern injection treatment of hernia and that of Heath of Boston, of some forty years ago, is in the materials injected but the reasons why the method is not more successful are just the same now as they were then. Heath used as an injection material the extract of white oak bark, but to day alcohol, tannin, zinc chloride, phenol, etc., are used in addition to this, while cocaine, morphin or other narcotics are frequently added to relieve somewhat the pain of the injection. Whatever the substance used, the object is the same, namely to cause sufficient proliferation of connective tissue to block the descent of the rupture. The latest substance to be used in this way is paraffin, which is injected into the canal in a liquid form where it solidifies on cooling and is supposed to act mechanically by blocking the opening through which the rupture descends. The apparent simplicity of the method led to its ready adoption by charlatans and advertisers who, by advertising to cure ruptures without the use of the knife and without the confinement of the patient to bed, have reaped a rich harvest from the gullible and the timid. Were the method a success, the risks connected with it might be justified, but unfortunately it is not. That an exudate may be produced which may temporarily hold up a rupture is not to be denied, but that the result is usually not permanent is well known by all surgeons of experience, since they are almost constantly being called on to reoperate on recurrent cases after the injection treatment.

The reasons for the failure of the injection treatment are mainly two. First, the sac is left undisturbed, and it has been universally found that the presence of the sac is the greatest predisposing factor to a recurrence. Second a mass of new-formed connective tissue, such as is formed by the irritant injected, yields readily to continued pressure. Concerning the fallacies of the paraffin injection treatment, an article by Harris in THE JOURNAL (Oct 19, 1907, xlix, 1353) shows that the method not only fails to effect a cure, but that the paraffin itself may prove such a source of pain and annoyance as to require removal.

Since the radical operation for the cure of hernia entails such a slight risk—only a fraction of 1 per cent—and since the permanent results are so very satisfactory—2 to 3 per cent of recurrences—there seems to be no good reason why an inferior method should be used which entails as great a risk and which is followed by very unsatisfactory results.

FIFTY YEARS AS ANESTHETISTS

To the Editor.—Please ask your readers to send me the names of any physicians now living who have been administering anesthetics for over fifty years. Dr. Stephen J. Young of Terre Haute, has been a specialist in anesthesia for fifty seven years and at present limits his practice to this line of work.

CHARLES N. COMBS, Terre Haute, Ind.

SAPONATED PETROLATUM

To the Editor.—Please inform me as to the nature of saponated petrolatum referred to in THE JOURNAL, Jan 9, 1909, by a contributor in South Africa.

ANSWER.—Petrolatum saponatum liquidum or liquid petrox is a National Formulary preparation and consists of a mixture of 100 parts of petrolatum, 50 parts of oleic acid and 25 parts of spirit of ammonia. It dissolves iodine, salicylic acid, and many alkalis.

solids readily, mixes with chloroform and with volatile oils, and forms a permanent emulsion with water in almost any proportion, before and after such addition.

URINE ANALYSIS IN PYORRHEA ALVEOLARIS

To the Editor.—I have lately been impressed by the coincidence of pyorrhea alveolaris (pus coming up over the gums from the roots of the teeth) and sugar and albumin in the urine, and the disappearance of these symptoms when the condition of the teeth was cured. I am collecting two hundred cases of pyorrhea alveolaris, with urine examinations before and after the pyorrhea is cured. I wish to ask other practitioners who are interested in this subject, to kindly send me any results which they have in the same line, that is, when they find sugar and albumin in the urine, will they have the teeth investigated and find out how many of such patients have pyorrhea alveolaris? This is a subject of interest to all of us, and I am sure the results will amply repay us for the trouble involved.

WILLIAM MARTIN RICHARDS
229 West 97th street, New York City

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers. U. S. Army, week ending, Jan 16, 1909.

Smith, A. M., major, granted leave of absence for four months, when relieved from duty in the Philippines Division.

Quinton, W. W., captain, granted an extension of one month to his sick leave of absence.

Clarke, J. T., major, ordered to Fort Crook, Neb., on return with troops from Cuba.

Miller, R. B., captain, ordered to Fort Meade, S. D., on return with troops from Cuba.

Ashburn, P. M., major, ordered from Fort Banks, Mass., to Jefferson Barracks, Mo., for temporary duty and return.

Farr, C. W., captain, ordered from Fort McKinley, Maine, to Fort Banks, Mass., for temporary duty and return.

Tefft, W. H., captain, granted leave of absence for two months.

Woodson, R. S., major, relieved from duty in the Philippines Division, will sail March 15 from Manila for San Francisco, Calif.

Nichols, H. J., first lieutenant, relieved from duty in the Philippines Division, will sail on first available transport from Manila for San Francisco, Cal.

Kean, J. R., major, on relief from duty with the Provisional Government of Cuba, ordered to return to duty in the Surgeon-General's Office, Washington.

Edle, G. L., major, ordered to Hot Springs, Ark., for observation and treatment at the Army and Navy General Hospital.

Brooks, W. H., captain, granted leave of absence for one month on arrival in the United States.

O'Reilly, B. M., brig gen., retired from active service Jan 14, 1909, as a major general.

Adair, G. W., col., ordered for examination by an Army retiring board at Chicago, Ill.

Davis, W. T., capt., relieved from duty with Army of Cuban Pacification and ordered to Washington, D. C., for duty as assistant to the attending surgeon.

Ragan, C. A., capt., relieved from duty at Fortress Monroe, Va., and ordered to duty as surgeon of the transport *Kilpatrick* en route to the Philippine Islands, and on arrival at Manila, to duty in the Philippines Division.

Worthington, J. A., 1st lieut., relieved from duty on the transport *Thomas*, and ordered to duty in the Philippines Division.

Krebs, L. L., capt., relieved from duty in the Philippines Division and ordered to duty as surgeon of the transport *Thomas*.

Smith, R. D., M. R. C., granted an extension of one month to leave of absence.

Porter, E. H., M. R. C., granted leave of absence for one month.

Betts, C. A., M. R. C., ordered from Ft. Lawton, Wash., to Ft. Worden, Wash., for temporary duty.

Lowe, T. S., M. R. C., ordered from Ft. Walla Walla, Wash., to Vancouver Barracks, Wash., for temporary duty.

Navy Changes

Changes in the Medical Corps, U. S. Navy, for the week ending Jan 16, 1909.

Ledbetter, R. E., surgeon, commissioned surgeon from Oct 11, 1908.

Sellers, F. E., P. A. surgeon, commissioned P. A. surgeon from Aug 1, 1908.

Old, E. H. H., White, E. C., P. A. surgeons, commissioned P. A. surgeons, from Sept 21, 1908.

Melhorn, K. C., asst. surgeon, ordered to the Navy Yard, Philadelphia, Pa., for duty in connection with fitting out of the *Dixie* and ordered to duty on board that vessel when commissioned.

De Lancy, G. H., P. A. surgeon, detached from the Navy Yard, New York, and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

Fauntleroy, A. M., P. A. surgeon, detached from the Naval Hospital, Annapolis, Md., and ordered to the Naval Hospital, Philadelphia, Pa.

Ideen, J. H., P. A. surgeon, orders to the Naval Hospital, Pensacola, Fla., revoked, ordered to the Naval Hospital, Annapolis, Md.

Campbell, R. A., acting asst. surgeon, appointed acting asst. surgeon from Jan 9, 1909.

Hart, G. G., acting asst. surgeon, appointed acting asst. surgeon from Jan 10, 1909.

Scott, T. W., pharmacist, unexpired portion of leave revoked; ordered to duty at the Naval Hospital, Annapolis, Md.

Kindleberger, C. P., surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Navy Yard, Mare Island, Cal.

Trible, G. B., asst. surgeon, detached from the *Relief* and ordered to the Naval Station, Olongapo, P. I., for temporary duty.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Jan. 15, 1909.

SMALLPOX—UNITED STATES

California: Los Angeles, Dec. 19-26, 1 case; Oakland, Dec. 26-Jan. 2, 4 cases; San Francisco, Dec. 19-26, 8 cases.
District of Columbia: Washington, Dec. 26-Jan. 2, 1 case.
Illinois: Cairo, to Jan. 7, 12 cases; Peoria, Dec. 19-26, 4 cases.
Indiana: Anderson, Dec. 1-31, 1 case; La Fayette, Dec. 27-Jan. 4, 3 cases.
Kansas: Atchison, Dec. 26-Jan. 2, 1 case; Pittsburg, Dec. 1-31, 36 cases.
Kentucky: Covington, Dec. 26-Jan. 2, 2 cases; Lexington, Dec. 26-Jan. 2, 2 cases.
Louisiana: New Orleans, Dec. 19-Jan. 2, 2 cases imported.
Minnesota: Stillwater, Dec. 1-31, 3 cases.
Missouri: St. Louis, Dec. 19-26, 2 cases.
Nebraska: Lincoln, Nov. 1-30, 3 cases.
Ohio: Cincinnati, Dec. 26-Jan. 2, 20 cases.
Pennsylvania: Gracendale, Oct. 24, 1 case.
Tennessee: Knoxville, Dec. 26-Jan. 2, 1 case.
Texas: Falfurttiss, Dec. 26, 12 cases; San Antonio, Dec. 26-Jan. 2, 6 cases.
Washington: Seattle, Nov. 1-30, 7 cases; Spokane, Dec. 19-26, 1 case; Tacoma, Dec. 13-Jan. 3, 14 cases.
Wisconsin: La Crosse, Dec. 19-Jan. 2, 6 cases.

SMALLPOX—FOREIGN

Brazil: Pernambuco, Nov. 1-15, 3 cases; Rio de Janeiro, Nov. 15-29, 420 cases, 200 deaths; Sao Paulo, Santos, Nov. 23-Dec. 6, 31 deaths; Santos, Nov. 15-22, 2 deaths.
Canada: Halifax, Dec. 19-26, 2 cases; Winnipeg, Dec. 19-26, 1 case; Yarmouth, Dec. 1-31, 1 case.
China: Shanghai, Dec. 8, present.
Egypt: Cairo, Dec. 2-9, 4 cases, 3 deaths.
Greece: Athens, Dec. 5-12, 1 death.
India: General, Nov. 21-28, 2,156 cases, 1,646 deaths; Bombay, Dec. 1-8, 1 death; Calcutta, Nov. 7-28, 10 cases; Madras, Nov. 28-Dec. 4, 1 case; Rangoon, Nov. 21-28, 1 case.
Indo-China: Cholen, Nov. 14-21, 1 case, 1 death; Saigon, Oct. 31-Nov. 21, 2 cases, 2 deaths.
Italy, general: Dec. 13-20, 10 cases; Naples, Dec. 13-20, 18 cases, 4 deaths.
Persia: Teheran, Nov. 14-28, 10 deaths.
Russia: Warsaw, Nov. 14-28, 5 deaths.
Spain: Barcelona, Dec. 12-19, 1 death; Madrid, Nov. 1-30, 9 deaths.
Turkey: Constantinople, Dec. 3-13, 15 deaths.

YELLOW FEVER

Brazil: Manaus, Nov. 28-Dec. 5, 2 deaths.
Ecuador: Guayaquil, Nov. 28-Dec. 2, 4 deaths.
Martinique: Port de France, Dec. 12-19, 1 case.

CHOLERA—FOREIGN

India: Calcutta, Nov. 7-28, 31 deaths; Madras, Nov. 21-Dec. 4, 19 deaths; Rangoon, Nov. 21-28, 1 death.
Indo-China: Cholen, Nov. 8-15, 1 case, 1 death.
Russia: St. Petersburg, Dec. 15-23, 89 cases, 28 deaths.
Straits Settlements: Singapore, Nov. 15-22, 10 deaths.

CHOLERA—INSULAR

Philippine Islands: Manila, Nov. 14-28, 24 cases, 18 deaths; Provinces, Nov. 14-28, 518 cases, 345 deaths.

PLAGUE

Brazil: Rio de Janeiro, Nov. 15-29, 18 cases, 8 deaths.
Ecuador: Guayaquil, Nov. 28-Dec. 5, 3 deaths.
India: Bombay, Dec. 1-8, 7 deaths; Calcutta, Nov. 7-28, 18 deaths; Rangoon, Nov. 21-28, 2 deaths.
Indo-China: Cholen, Oct. 24-Nov. 21, 10 cases, 9 deaths; Saigon, Oct. 24-Nov. 7, 3 cases, 2 deaths.
Mauritius: Oct. 22-29, 5 cases, 4 deaths.
Turkey: Bagdad, Nov. 6-Dec. 5, 14 cases, 9 deaths.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Jan. 13, 1909:

Gassaway, J. M., surgeon, directed to proceed to Pittsburg, Pa., on special temporary duty, Jan. 12, 1909.
Mead, F. W., surgeon, directed to proceed to Georgetown, S. C., and Jacksonville, Fla., on special temporary duty, Jan. 8, 1909.
White, Joseph H., surgeon, granted 7 days' leave of absence from Jan. 9, 1909, under paragraph 189 of the Service Regulations.
Gardner, C. H., P. A. surgeon, directed to proceed to Southport, N. C., on special temporary duty.
Cofert, L. E., P. A. surgeon, granted 9 days' leave of absence from Jan. 1, 1909, on account of sickness.
Lavinder, C. H., P. A. surgeon, detailed as member of board of medical officers convened under bureau orders of Dec. 8, 1908, Jan. 8, 1909.
Goldsberger, Joseph, P. A. surgeon, relieved as member of board of medical officers, convened under bureau orders of Dec. 8, 1908, Jan. 8, 1909.
Glover, M. W., P. A. surgeon, granted 7 days' leave of absence from Jan. 8, 1909.
Burkhalter, J. T., P. A. surgeon, leave of absence, granted Dec. 9, 1908, for 1 month from Dec. 19, 1908, amended to read 19 days from Dec. 19, 1908.
Mullan, E. H., asst.-surgeon, granted 4 days' leave of absence en route to joint station.
Warner, H. J., asst.-surgeon, directed to proceed to Cape Charles Quarantine, Fortress Monroe, Va., for temporary duty, Jan. 6, 1909.
McKinney, M. W., acting asst.-surgeon, granted 7 days' leave of absence, under paragraph 210 of the Service Regulations.
Rodman, J. C., acting asst.-surgeon, granted 5 days' leave of absence from Jan. 11, 1909.

RESIGNATION

Ward, William K., resignation accepted by the president, to take effect Jan. 15, 1909.

Marriages

JOHN LUNNEY, M.D., to Miss Campion, both of Darlington, S. C., January 7.

JOHN STANLEY HANLON, M.D., to Miss Marks, both of San Francisco, December 29.

PHILIP FOSTER BARBOUR, M.D., to Miss Elizabeth Akin, both of Louisville, January 6.

THOMAS W. BAILEY, M.D., to Miss Mary Travers, both of Philadelphia, January 7.

NATHANIEL ALLISON, M.D., St. Louis, to Miss Marian Aldrich of Chicago, January 9.

ORRIL LE GRAND SUGGETT, M.D., St. Louis, to Mrs. Helen K. Seligman of Chicago, January 1.

D. E. MORGAN, M.D., LaGrange, Ga., to Miss Clyde Morrow of Henderson, N. C., December 21.

JAMES ATKINSON SMITH, M.D., to Miss Delia Grace Peet, both of St. Louis, December 17.

NEIL DAVID NELSON, M.D., Shoshoni, Wyo., to Miss Mabel Porter of Milwaukee, December 15.

DAVID M. FIELDS, M.D., King's Creek, Ky., to Miss Mattie Adams of Cowan Creek, Ky., recently.

ADDISON GUTHRIE SWANEY, M.D., to Miss Nina Isabel Martin, both of Lee's Summit, Mo., December 30.

ROBERT BRAXTON JARRATT, JR., M.D., to Miss Phillips, both of Richmond, Va., at Washington, D. C., January 4.

CARL WILLIAM WALSER, M.D., New Brighton, Staten Island, N. Y., to Miss Rubeana Fixter of Anne de Bellevue, Quebec, December 31.

Deaths

John Pitt Matthews, M.D. Long Island College Hospital, Brooklyn, N. Y., 1865; Illinois Army Board, 1862; a member of the American Medical Association; in 1890 vice-president of the Illinois Medical Society and president in 1891; assistant surgeon of the One Hundred and Twenty-second Illinois Volunteer Infantry during the Civil War; a member of the U. S. Board of Pension Examining Surgeons from 1865 to 1875; died at his home in Carlinville, Ill., from valvular heart disease and chronic interstitial nephritis, January 7, aged 73.

William Maddren, M.D. Bellevue Hospital Medical College, New York City, 1873; a member of the American Medical Association; vice-president of the Medical Society of the State of New York; a member of the Brooklyn Pathological Surgical and Gynecological societies; surgeon to King's County, Bradford Street and Coney Island Reception hospitals; consulting surgeon to the St. Christopher State Hospital and the Brooklyn Central Dispensary; died at his home in Brooklyn, January 8, after a prolonged illness, aged 63.

Offa Lunsford Shivers, M.D. Tulane University, New Orleans, 1873; a member of the American Medical Association; a member of the city council of Marion, Ala., for three years and trustee of the public schools for eight years; one of the organizers of the Southern Medical Association and Southern Surgical and Gynecological Association; for seven years a councilor of the Medical Association of the State of Alabama; died in an infirmary in Selma, Ala., January 4, from cirrhosis of the liver, aged 59.

John J. Quigley, M.D. New York University, New York City, 1886; a member of the Medical Society of the State of New York, New York Academy of Medicine and Celtic Medical Society; visiting surgeon to Fordham Hospital; chief surgeon to the New York Police Department; from 1894 to 1897 surgeon to the fire department; professor of clinical surgery at Fordham University; died at his home in New York City, January 8, from cerebral hemorrhage, aged 44.

Daniel Dudley Gilbert, M.D. Berkshire Medical College, Pittsfield, Mass., 1864; a member of the American Medical Association; medical cadet in the U. S. Army in 1862; and assistant surgeon in the U. S. Navy in 1863; a member of the staff of the Boston City Hospital; consulting physician to St. Mary's Infant and Maternity Asylum, and the Massachusetts State Insane Hospital, Danvers; died recently at his home in Boston, aged 70.

Wiley K. Fort, M.D. University of Pennsylvania, Philadelphia, 1855; surgeon in the Confederate service during the

Civil War; an expert on yellow fever and sent by the United States Government as special commissioner to Puerto Cortez, Central America, to investigate yellow-fever conditions there; for thirty years a practitioner of New Orleans; died at the home of his sister in Fort Davis, Ala., January 4, aged 75.

Edward R. Snader, M.D. Hahnemann Medical College, Philadelphia, 1884; of Philadelphia; professor of practice of medicine in his alma mater, and visiting physician to St. Luke's and the Children's hospitals; consulting physician to Harler Memorial Hospital; was instantly killed by the fall of his automobile over an embankment in Fairmount Park, Philadelphia, January 4, aged 54.

James Andrews De Wolf, M.D. College of Physicians and Surgeons, New York City, 1865; formerly of Providence, R. I.; acting assistant surgeon in the Army during the Civil War; for 39 years a practitioner of Port of Spain, Trinidad; government medical officer of Trinidad in 1874, and surgeon general of that colony from 1901 to 1907; died at his home, January 2, aged 69.

David T. Stewart, M.D. Rush Medical College, Chicago, 1881; of Hartley, Iowa; a member of the local board of U. S. Pension Examining Surgeons; a member of the Association of Surgeons of the Chicago, Milwaukee and St. Paul and the Chicago and Rock Island railways; died suddenly December 26, from heart disease, while returning from a professional call, aged 59.

Anthony W. Scarlett, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1899; of Pueblo, Colo.; a member of the Colorado State Medical Society; surgeon to the Colorado Fuel and Iron Company, and to the Colorado and Wyoming Railroad; was drowned in the Nenahoe Reservoir near Eads, Colo., while hunting, January 3, aged 35.

Otis Lawrence Williams, M.D. Tulane University, New Orleans, 1872; a member of the Tri-State Medical Society of Texas, Indian Territory and Oklahoma; professor of electrotherapeutics in Southwestern University, Dallas, Texas; a member of the staff of the St. Paul Sanitarium, Dallas; died at his home, January 1, aged 65.

Ira Gordon Stone, M.D. Rush Medical College, Chicago, 1890; a member of the American Medical Association; and president of the Kingfisher County (Okla.) Medical Society; mayor of Kingfisher, 1905 to 1907; died in St. Francis Hospital, Wichita, Kan., December 31, after an operation for cholecystitis, aged 54.

Marion F. Williamson, M.D. Medical College of Ohio, Cincinnati, 1865; a member of the American Medical Association; and one of the most prominent citizens of Joliet, Ill.; died at his home January 6, from pneumonia, aged 75. At his funeral the pallbearers were all members of the Will County Medical Society.

John T. Luck, M.D. College of Physicians and Surgeons, New York City, 1858; a surgeon in the Navy during the Civil War; consulting physician to the North Hudson Hospital; for many years school trustee and library commission of Union Hill, N. J.; died at his home in Weehawken, N. J., recently.

James Lewis Davis, M.D. Washington University, St. Louis, 1850; of San Antonio; a member of the State Medical Association of Texas; a surgeon in the Confederate service during the Civil War; died at the Physicians and Surgeons' Hospital, San Antonio, January 4, from arteriosclerosis, aged 76.

Frank S. Wagenhals, M.D. Starling Medical College, Columbus, Ohio, 1878; director of the Columbus City Infirmary 1883-1887; for four years chief physician to the Ohio State Penitentiary; died at his home in Columbus, January 9, from cancer of the stomach, aged 59.

John S. Stockwell, M.D. Rush Medical College, Chicago, 1888; a member of the American Medical Association; township physician and for several years town health officer; died suddenly at his home in Charlestown, Ind., January 6, from angina pectoris, aged 61.

Andrew J. Beale, M.D. Transylvania University, Lexington, Ky., 1854; formerly a member of the Kentucky legislature; a Confederate veteran and first mayor of Oklahoma City, Okla.; died at the home of his daughter in Cynthiana, Ky., January 4, aged 73.

Charles Cecil Stockard, M.D. Vanderbilt University, Nashville, Tenn., 1877; a member of the Medical Association of Georgia; founder of the Stockard Sanatorium, Atlanta; died suddenly at his home in Atlanta, from heart disease, January 4, aged 55.

Frederick William Dortch, M.D. Vanderbilt University, Nashville, Tenn., 1898; of DeRidder, La.; a member of the American Medical Association; died from chronic nephritis in the Shreveport Sanitarium, December 30, after an operation, aged 37.

William Forster, M.D. University of Buffalo, N. Y., 1865; for many years a member and in 1908 elected an honorary member of the American Medical Association; died at his home in Oil City, Pa., January 5, from disease of the liver, aged 69.

Jabus Swanson Nowlin, M.D. University of Nashville, Tenn., 1859; a member of the Tennessee State Medical Association; died at his home in Shelbyville, December 29, five days after a fall in which he sustained a fracture of the hip, aged 70.

Arthur Ward King, M.D. Cleveland Homeopathic Medical College, 1905; of Cleveland, Ohio; a member of the Ohio State Medical Association; died at his home, January 8, after an exploratory operation for disease of the kidney, aged 26.

Irving Benjamin Hayes, M.D. Long Island College Hospital, Brooklyn, N. Y., 1889; of Florence, Mass.; a member of the American Medical Association; was instantly killed by a fall from a train near El Paso, Texas, January 3, aged 46.

William Joseph McGuigan, M.D. McGill University, Montreal, 1879; M.C.P. & S., Ont., 1880; formerly coroner, alderman and mayor of Vancouver, B. C.; died at his home in that city, December 25, after an illness of six months.

Redell C. Fausett, M.D. Starling Medical College, Columbus, Ohio, 1890; formerly a member of the board of health of Geneva, Ohio; died suddenly at his home in Olmsted Falls, Ohio, from pneumonia, December 20, aged 53.

Rhessa S. Slusher, M.D. Barnes Medical College, St. Louis, 1900; for two years surgeon for the Santa Fe, Prescott and Phoenix Railroad at Phoenix, Ariz.; died at his home in Denver, January 3, from tuberculosis, aged 31.

John Bligh Leeson, M.D. Trinity Medical College, Toronto, 1895; Manitoba Medical College, Winnipeg, 1901; of Brandon, Man.; died at Beresford, Man., November 23, from injuries received in a runaway accident, aged 38.

Clarence F. Roberts, M.D. Medical College of Ohio, Cincinnati, 1895; a member of the American Medical Association; formerly of Nevada, Mo.; died at his home in Kansas City, December 27, from peritonitis, aged 37.

Joseph L. Mizener, M.D. Missouri Medical College, St. Louis, 1873; a member of the Missouri State Medical Association; died at his home in Edgerton, Mo., from an overdose of morphin, January 5, aged 66.

William Frederick Docker, M.D. Jefferson Medical College, Philadelphia, 1868; of Shawneetown, Ill.; died suddenly at the home of his sister in Minonk, Ill., March 25, from cerebral hemorrhage, aged 62.

Matthew Chalmers, M.D. College of Physicians and Surgeons, New York City, 1861; of New York City; assistant surgeon in the Navy during the Civil War; died at his home January 6, aged 72.

Mordecai Wheatley Suter, M.D. Eclectic Medical College of Philadelphia, 1867; a veteran of the Civil War; died at his home in Rocky Fork, Ohio, from disease of the liver, January 9, aged 72.

James Cowden Grafton, an eclectic practitioner of Ossian, Ind., and a surgeon during the Civil War; died at the home of his daughter near Monroe, Ind., September 9, from nephritis, aged 69.

George Hunt, M.D. University of the Victoria College, Cobourg, Ont., 1886; medical health officer for Sunnidale Township; died at his home in New Lowell, Ont., September 5, aged 42.

Joseph Waldo Jewett, M.D. New York University, New York City, 1881; an oculist and aurist of New Haven, Conn.; died at his home, December 30, from typhoid fever, aged 54.

Garner M. Jordan, M.D. University of Tennessee, Nashville, 1866; a surgeon in the Confederate service during the Civil War; died at his home in Triune, Tenn., December 27, aged 70.

John Wesley Wade, M.D. Ensworth Medical College, St. Joseph, 1880; of Denver; a Confederate veteran; died at Steele Hospital, Denver, December 29, from erysipelas, aged 68.

Frederick William Schoppenhorst, M.D. Southwestern Homeopathic Medical College, Louisville, 1907; died at his home in Louisville, July 10, from capillary bronchitis, aged 26.

Robert A. Hawthorne (license, Neb., 1892), of Lawrence, Neb.; a veteran of the Civil War; died at the State Hospital, Ingleside, Neb., February 4, from senile debility, aged 79.

Wilbur W. Fry, M.D. Medico-Chirurgical College of Philadelphia, 1893; of Riverton, N. J.; died suddenly at his home, December 26, from the effects of an overdose of morphin.

Van Room R. Tindall, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1864; of Philadelphia; died in the Hahnemann Hospital in that city, January 5, aged 69.

George C. Littlepage, M.D. Jefferson Medical College, Philadelphia, 1877; died at his home in Warrenton, near Haubstadt, Ind., December 30, from cholecystitis, aged 56.

Frank Lindsey Hughes, M.D. College of Physicians and Surgeons, Memphis, Tenn., 1907; died at his home in Jackson, Tenn., from tuberculosis, December 28, aged 26.

H. C. F. Perlewitz, M.D. Hahnemann Medical College, Chicago, 1878; formerly of Algoma, Wis.; died at the home of his daughter in Seymour, Wis., January 3, aged 85.

Asa Scott Brecount, M.D. Eclectic Medical Institute, Cincinnati, 1876; president of the board of education of Arkansas City, Kan.; died at his home, January 3, aged 57.

Alexander Thomas Steele, M.D. Toronto University, 1901; of Shelbourne, Ont.; died at the home of his father in Orangeville, Ont., December 28, from diabetes, aged 30.

Vilroy T. Wilson, M.D. Drake University, Des Moines, Iowa, 1888; a veteran of the Civil War; died suddenly at his home in Hudson, S. D., December 22, aged 59.

Wilson Tanner White, M.D. University of Tennessee, Nashville, 1886; died at his home in Rockford, Ala., December 18, from paralysis of the throat, aged 49.

Wilson S. Anderson, M.D. Starling Medical College, Columbus, Ohio, 1852; died at his home in Newtonsville, Ohio, December 28, from pneumonia, aged 80.

William Wallace Ward, M.D. Baltimore University School of Medicine, 1895; died at his home in Harrisonville, Md., January 8, from pneumonia, aged 36.

John F. MacCormack, M.D. Trinity Medical College, Toronto, 1889; of Lafayette, Colo.; died in the University Hospital, Boulder, Colo., December 27, aged 46.

Thomas E. Woods, M.D. Western Reserve University, Cleveland, 1870; a veteran of the Civil War; died at his home in Findlay, Ohio, January 2, aged 68.

Ira Asbury Landis, M.D. Miami Medical College, Cincinnati, 1890; of Lightsville, Ohio; died in Albuquerque, N. M., December 13, from tuberculosis, aged 41.

J. W. Mabin, M.D. New Orleans School of Medicine, 1858; of Biloxi, Miss.; was found drowned in the Mississippi near Gulfport, Miss., July 21, aged 85.

Loren Levie Loomis, M.D. Physio-Medical Institute, Cincinnati, 1879; died at his home in Pemberville, Ohio, December 28, from heart disease, aged 79.

Luther Schofield, M.D. Cleveland Medical College, 1897; died suddenly from cerebral hemorrhage, at his home in Maumee, Ohio, December 29, aged 48.

Jasper N. Haynes, M.D. St. Louis College of Physicians and Surgeons, 1885; died at his home in Nevada, Mo., December 16, from influenza, aged 66.

John W. Davis, M.D. Rush Medical College, Chicago, 1902; of Defiance, Ohio; died at the Oakes Home, Denver, January 7, from tuberculosis, aged 31.

George Frederick Whitworth, Jr., M.D. Hahnemann Medical College, Chicago, 1884; died at his home in Berkeley, Cal., December 27, aged 51.

Samuel H. Hicks, M.D. University of Louisville, 1890; of Shreveport, La.; was shot and killed in an affray in that city, December 29.

George E. Marshall, M.D. Detroit College of Medicine, 1897; died at his home in Aguilar, Colo., December 30, from pneumonia, aged 38.

Douglas Argyll Robertson, M.D. St. Andrews, 1857; F.R.C.S. Edinburgh, 1862; honorary surgeon-oculist to the king in Scotland; formerly lecturer on diseases of the eye in the University of Edinburgh; ex-president of the Medico-Chirurgical Society of Edinburgh, and president of the ophthalmologic section of the British Medical Association in 1898; author of numerous papers on ophthalmic surgery; whose name is commemorated in the phenomenon referred to as the Argyll-Robertson pupil; retired, is reported to have died at Gondal, India, aged 71.

Medicolegal

In What Practice of Medicine May Consist

The Supreme Judicial Court of Massachusetts says that the defendant in the case of Commonwealth vs. Jewell was convicted under a complaint charging him with a violation of Section 8 of Chapter 76 of the revised laws of Massachusetts by practicing medicine in that commonwealth without being lawfully authorized so to do. There was conflicting evidence at the trial in regard to what he had done. To quote from the judge's charge: "The commonwealth says that on different occasions the defendant has prescribed medicines and administered, and advertised that he prescribed as a part of his treatment, what he called 'vitalizer,' and that he has been in the habit of giving what are called electric or ray baths, and that on one or more occasions in the giving of what was called the stomach wash, another substance than water was in the tumbler, which was taken by the patient." There was also evidence that on different occasions he did make a diagnosis of the patients, for the purpose of ascertaining what ailed them and that then he prescribed for them treatment which was afterward administered to them. The defendant did not admit this. In his charge the judge said: "The defendant does not claim that he has any knowledge of drugs or of disease in the ordinary sense in which that word is used. I understand him to testify that he did not understand about diseases, that he did not treat disease; but that he treated the healthy portions of the body."

The defendant asked the court to rule that "there is no law against a person being a mind cure healer, or a massage healer, or an osteopathist; he can practice his healing so long as he does not prescribe or deal out medicine." The defendant excepted to the refusal of the judge to give in terms the last part of this request. He also excepted to the "rulings and refusals to rule." The defendant's request implied that one could not practice medicine within the meaning of the words in Section 8 without prescribing or dealing out medicine, that is, prescribing or dealing out a substance used as a remedy for disease.

The judge, on the other hand, allowed the jury to find that one might practice medicine within the meaning of the statute, that is, might practice the healing art, or the art or science which relates to the prevention, cure or alleviation of disease, without necessarily prescribing or dealing out a substance to be used as a medicine. In this the court thinks he was right. It would be too narrow a view of the practice of medicine to say that it could not be engaged in any case otherwise than by prescribing or dealing out a substance to be used as a remedy. The science of medicine, that is, the science which relates to the prevention, cure or alleviation of disease, covers a broad field, and is not limited to that department of knowledge which relates to the administration of medicinal substances. It includes a knowledge, not only of the functions of the organs of the human body, but also of the diseases to which these organs are subject, and of the laws of health and the modes of living which tend to avert or overcome disease, as well as of the specific methods of treatment that are most effective in promoting cures. It is conceivable that one may practice medicine to some extent, in certain classes of cases, without dealing out or prescribing drugs or other substances to be used as medicines. It is conceivable that one may do it in other ways than those practiced as a part of their respective systems, by either "osteopathists, pharmacists, clairvoyants or persons practicing hypnotism, magnetic healing, mind cure, massage cure science, or the cosmopathic method of healing."

The purpose of the statute seems to be to permit the practice of these several methods of treatment, including everything that strictly belongs to each; but not to permit the unlicensed practice of medicine otherwise. If a practice of medicine otherwise, without dealing out or prescribing drugs or other substances to be used as medicine, is possible, the rulings and refusals to rule were right. The court thinks such a practice of medicine is possible, and the defendant's exceptions are overruled.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, Jan. 26.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Regular Meeting held Dec. 23, 1908

The President, DR. ALBERT M. EATON, in the Chair.

Gastrointestinal Disturbances Due to Arteriosclerosis

DR. JOHN J. GILBRIDE: Gastrointestinal disturbances due to arteriosclerosis may be met in patients who have a generalized arteriosclerosis or in those in whom the splanchnic arteries only appear to be diseased. Within the past few months I have treated ten patients with arteriosclerosis in whom the symptoms were mostly gastrointestinal. Abdominal pain is a prominent symptom, localized in the epigastric or umbilical regions. Next to pain, the most common symptom is weakness and loss of weight. Abdominal distention and belching are also frequently present. Therefore, the association of dyspepsia with weakness and loss of weight in persons of middle or advanced age is apt to arouse some apprehension. The appetite may be variable; there may be constipation, alternating with attacks of diarrhea. The radial arteries may or may not be sclerosed, and the blood pressure may be high, low or normal. It is important to determine the blood pressure. A diagnosis of arteriosclerosis can be made in most of the cases without an analysis of the gastric contents, but it is safer to make such analysis. In some cases of arteriosclerosis there is pulsation in the epigastrium and the abdominal aorta is tender and painful. In the treatment the use of strophanthus and diuretin was followed by satisfactory results.

DISCUSSION

DR. WILLIAM EGBERT ROBERTSON: Did Dr. Gilbride take the blood pressure in these cases, and how would he recognize an arteriosclerotic abdominal lesion in the absence of a definite arteriosclerosis elsewhere? The blood pressure is not an index necessarily of arteriosclerosis, but there would be varying pressures dependent on the heart muscle.

DR. JAMES M. ANDERS: That there are cases of gastrointestinal disturbance dependent on arteriosclerosis I have no doubt, but there are many etiologic factors which may account for the disturbance. I have not much faith in the disease known recently as angina abdominis. In cases of severe pain below the diaphragm which might be termed angina abdominis, there are usually other features on which a diagnosis of true angina pectoris can be based. In other words, the cases are angina pectoris with the lesions in other places than the abdomen, but in which the pain is referred to some point below the diaphragm.

A Medical Library for the Philadelphia County Medical Society

DR. JAMES M. ANDERS: The creation of an independent library under suitable regulations for the Philadelphia County Medical Society would be regarded as a substantial favor by its members. It is the junior physician who is urgently in need of reference books, periodicals and practical works to aid in the development of his knowledge and experience. The library of the College of Physicians is one of which any city might feel proud, but it is not easily available to the majority of the members of the Philadelphia County Medical Society. In the matter of requisite funds, it is to be recollected that not less than three-fourths of the books in existing medical libraries have been donated. Through a special committee the society could create, though of necessity gradually, a working library and it could as readily discharge the debt. One useful line of work would be the collection and filing of reports of health officials, both local and general, and the leading exchanges from various sources. At the commencement, a central library under the control of the parent society only should be undertaken, while later the different branches should consider seriously the establishment of individual libraries for the greater convenience of the members residing in the various sections of the city. It seems to me

that the co-ordination of the libraries for the branches under the control of the librarian or council of the central society, would be a desirable and practicable scheme. Finally, what is true of the Philadelphia County Medical Society regarding an independent library applies with equal force to similar organizations in other counties having towns of considerable size.

The paper was favorably discussed and the subject referred to the board of directors.

Operations on the Cranial Vault

DR. H. C. MASLAND: The demands of modern cranial surgery have demonstrated the inefficiency of the present hand instruments. The best results are secured with the mechanically driven instruments, especially the circular saw, with which any sized bone flap can be raised without injury to the dura and with elevation rather than sinking after reposition.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Eighteenth Annual Meeting, held at Minneapolis, Dec. 29 and 30, 1908.

(Continued from page 285)

Diagnosis in Its Relation to the Laboratory and the Bedside

The president, Dr. W. W. Grant, Denver, delivered an address on this subject, which will be published in THE JOURNAL.

Sarcoma of the Fibula

DR. J. CLARK STEWART, Minneapolis, read a paper on this subject which was based on two cases observed within one month.

This form of tumor is rare, though probably not so rare as the study of the literature would show, as many cases are not reported. My first patient was a child, aged 8, with periosteal fibroid sarcoma of the upper end of the fibula of six months' duration. One-third of the fibula was excised, the whole tumor being removed down to healthy fibula. The second was a girl, aged 13, with sarcoma of the lower end of the fibula of about one year's duration, destroying the lower third of the bone. The leg was amputated, with excision of the whole fibula. The tumor was an alveolar central sarcoma and had perforated the bone at one point. In preparing the leg for amputation, an Esmarch was used above the knee to prevent the danger of dissemination by the necessary manipulation. In each of these cases treatment was modified to meet the individual conditions. In the first case it was deemed that much would be gained by excision, followed by the Coley treatment. In the second, amputation secured the removal of the whole fibula with a much better stump than would have been obtained by higher amputation.

The trend of the best modern practice seems to lean toward the less severe operation followed by the Coley treatment rather than the classical high amputation or disarticulation. The histologic type of sarcoma seen before dissemination determines the result. The softer periosteal sarcomata, as well as their prototypes in the central groups after they have penetrated the bone and invaded the soft parts, are probably never cured by operation, and only rarely by the Coley treatment, while giant and large spindle-cell tumors are of slow growth and slow to form metastases, and thus make possible better results and permit of conservative operations. With our present knowledge, I think that every patient with inoperable sarcoma and every one with sarcoma after operation should be given the Coley injection treatment, as the successes of this method have been too numerous and striking to justify any surgeon in not giving a patient what is certainly a fighting chance for life. My experience with this treatment has not been large, but it has convinced me of its positive value. Using it, as I have, only as a last resort in inoperable cases, it has never failed to produce marked improvement, as shown by shrinkage of the tumor and retardation in its growth, and in one case of sarcoma of the lower jaw I was able to obtain a complete disappearance of the tumor without recurrence during the two years the patient survived.

DISCUSSION

DR. JAMES E. MOORE, Minneapolis: Conservative operations are the proper ones. Patients who are to be saved by operation can be saved by a conservative operation, and in those cases of the most malignant type patients are not saved by extreme operation, so that it is proper and right to remove the bone involved or part of it at times and take the chances, because the chances are no better with that operation than with high amputation or disarticulation. Surgeons should observe the pathologic law that recurrence in the long bones from malignant growth of any type is more likely to occur in the proximal end of the bone. Many of these patients will permit of considerable operation when the chances for the preservation of life are best, whereas they hesitate before submitting to amputation until such time as hope of saving life by extreme operation has been deferred too long.

DR. J. W. ANDREWS, Mankato: A few years ago I had a case similar to those reported. In this the sarcoma occurred at the distal end of the fibula and involved one-third or possibly one-half of the bone. I recommended the removal of the fibula; but the patient went to Rochester, where amputation above the knee was recommended. She was not willing to submit to that operation, returned, and concluded to take my advice of excision of the entire fibula. This I did, and she made a beautiful recovery.

DR. B. B. DAVIS, Omaha: I have observed a number of cases of sarcoma involving the tibia, but only one of the fibula.

DR. JABEZ N. JACKSON, Kansas City: I recall a patient with sarcoma of the upper end of the fibula who was treated by operation, but recurrence took place in less than a year after operation at the site of the original tumor.

Treatment of Tetanus

DR. WILLIAM HESSERT, Chicago: The best treatment of tetanus is to prevent the disease by prophylactic injections of antitetanic serum. The treatment consists in: (1) Removing the source of further toxin supply by proper local wound treatment; (2) neutralizing the toxin which may be contained in the tissue juices by massive injections of antitoxin subcutaneously; (3) employing some remedy to allay the reflex excitability of the spinal cord, namely, subarachnoid injections of magnesium sulphate; (4) nourishing and supporting the patient. The treatment of tetanus may be summarized as follows: 1. Generally accepted methods of local wound treatment should include the use of peroxid of hydrogen and balsam of Peru. 2. The serum treatment should be limited to subcutaneous injections, at least fifteen hundred units twice daily, and continued for days and weeks, as the case demands. 3. Injections of 25 per cent. magnesium sulphate solution may be given by lumbar puncture, exercising great care, especially with the initial dose and in the case of children. Set the patients up and repeat the injection as often as necessary. Watch for its toxic effect on the medulla, as shown by depression of the heart and respiration. 4. Proctoeclysis is a valuable adjunct. Much depends on good nursing, with proper food and stimulation. Chloral and bromids may also be given, if there is no contraindication.

DISCUSSION

DR. M. L. HARRIS, Chicago: When tetanus has once developed antitoxin is practically useless, and we should not waste time simply by injecting antitoxin, hoping for good results. The best way to treat tetanus is to prevent it. In cases in which tetanus has already developed, hope must be centered entirely on the injection of some substance or agent which will control the spasms of the patient long enough to permit the system to break up the combination of the toxins in the body and eliminate them. We know of no way of overcoming these toxins or of hastening their elimination. If we can prevent the patient from dying from exhaustion incident to the spasms, or from asphyxia from the spasms of the chest muscles, long enough to permit the system to break up this combination, we may hope for recovery. So far, the best treatment seems to be injections of sulphate of magnesia. I have used it in three cases—two of the patients recovered and one died. I believe that death was due to too large a dose.

DR. DANIEL N. EISENDRATH, Chicago: Every punctured or blank cartridge wound ought to be converted into an open wound, and the only way to treat these cases, no matter whether the wound or wounds be in the hand or foot, is to anesthetize the patients, put on an Esmarch constrictor, open the wound from one end to the other, and not simply be content with opening up the wound, but cut away all necrotic tissue.

DR. F. GREGORY CONNELL, Oshkosh, Wis.: In two cases of tetanus in which I injected magnesium sulphate into the spinal canal, both patients died.

DR. ROGER B. BREWSTER, Kansas City, Mo.: I have had two cases of tetanus under observation recently. These occurred in the practice of Dr. George M. Gray. One was a boy with a wound of the hand. His jaws were locked. He was given antitetanic serum, the wound was thoroughly cared for, he was put on potassium bromid, and recovered. The other case was a young man of 21, with a wound of the index finger. Dr. Hertzley amputated the finger; gave him antitetanic serum; put the patient on 20 grain doses of potassium bromid every four hours, and kept him under that for about ten days. It was ten days before trismus was relieved. His spinal and neck muscles were all set, as well as the abdominal muscles, but on the tenth day he was relieved, and from that time made a good recovery. The boy had a punctured wound from a nail. The accident happened in the country. He came to the hospital on the third day after his jaws had set, and it was the tenth day before he got relief. I do not know the time of injury in the other case.

DR. C. H. MAYO, Rochester, Minn.: The incubation period is the main thing in considering these cases. If we take the cases of tetanus that begin within seven or eight days we lose 80 per cent. of them, whereas of those cases that do not begin until after the tenth or twelfth day we will save 80 per cent. So it makes a lot of difference.

DR. W. D. HAINS, Cincinnati: I had occasion in 1900 to look up the statistics that were published in THE JOURNAL of the American Medical Association. It was stated that 500 patients died within the first two weeks following Fourth-of-July wounds from tetanus. I looked up our local statistics for ten years. There were 101 cases that passed through the coroner's office in which it was recorded that the patients died of tetanus following Fourth-of-July wounds.

(To be continued)

SOUTHERN SURGICAL AND GYNECOLOGICAL
ASSOCIATION

Twenty-first Annual Session, held in St. Louis, Dec. 15-17, 1908

(Concluded from page 243)

Temporary Ventrosuspension of the Uterus: Its Technic, Indications and End-Results

DR. E. H. OCHSNER, Chicago: The operation consists in passing a needle armed with a double strand of ten-day unchromicized catgut through the rectus fascia, rectus muscle and peritoneum, on the right side, one inch below the lower angle of the peritoneal incision, then through the fundus of the uterus, being careful not to injure the peritoneal covering of the uterus unnecessarily, then cut through the abdominal wall in reverse order to its introduction. The stitch is then tied just tight enough to bring the uterus in contact with the parietal peritoneum, but not tight enough to cause necrosis of the peritoneum. I recommend this operation if after pelvic operations for inflammatory conditions the uterus shows a tendency to fall backward after the intra-abdominal work is completed. If properly applied it will prevent the uterus from falling backward and becoming adherent to the pelvic floor without making a permanent ventrosuspension or fixation with their numerous objectionable features.

Extensive Injury to the Abdominal Wall; Operation;
Recovery

DR. RUFUS B. HALL, Cincinnati, reported a case of an accident to an infant 17 months old, with extensive injury to

the abdominal wall, and evisceration of all of the small intestines, with recovery of the patient. The child's mother was giving him a bath by holding him on her lap in the kitchen where she had been canning fruit. To facilitate rinsing off the soap, she stood the child on the drain board of the sink, which was two and a half feet high. The mother left the child standing, and went across the room for a towel. The child fell, striking the right side of the abdomen on the top of an empty half-gallon glass Mason fruit jar. The impact broke the jar, telescoping it, leaving four sharp points remaining on the bottom of the can. One of these made a large wound in the side of the abdomen and the intestines at once protruded on to the dirty kitchen floor, picking up several fragments of peelings of tomatoes and pears. The child had lost a great quantity of blood, due to the injury of the deep epigastric artery. One prong of the glass cut through the tenth rib, dividing the intercostal artery. Another made an opening into the abdomen three inches above the large opening. All the small intestines, the pyloric end of the stomach, and four inches of the ascending colon were outside of the abdomen. There were sticking to the coils of bowel and omentum several pieces of the peelings of pears and tomatoes. When Dr. Hall arrived the child was semiconscious, pulseless, with cold extremities and rapid, superficial breathing. In addition to the division of the deep epigastric artery and the intercostal artery, there was a ragged-shaped wound in the omentum and one in the mesentery. The intestines were largely distended with undigested pears. The temperature twelve hours after the accident was 106.5 F., and remained high for twelve hours longer, at which time Dr. Hall succeeded in getting the intestinal tract emptied. Before the bowels were emptied, the child was delirious, with general twitching of the muscles throughout the body. Within two hours after the bowels were emptied the temperature declined to 100 F., and convalescence was established.

Surgical Treatment of Epilepsy

DR. W. P. CARR, Washington, D. C., reported 20 operations for epilepsy, and said:

Eight of these patients have been cured to date or were well when last heard from; one after nine years, one after eight and a half years, one after seven and a half years, one after four years, one after three and a half years, one after one year, and two after three months. Five of these patients, probably not traumatic, in which the habit was well established, have been cured for over three years; three of them for seven, eight and nine years, respectively. Nearly all were benefited temporarily, most of them being so much improved as to make the operation justifiable. One was confined in the Government Hospital for the Insane, and another was a complete imbecile. Both regained the normal mental condition and have remained mentally sound to date. Only one was not benefited. The best results were in cases apparently most unfavorable. I believe that operation for cases of long-standing traumatic epilepsy, and idiopathic or hereditary epilepsy, has been abandoned on theoretical grounds, without a fair trial of modern surgical methods, and that such patients should be operated on for the following reasons: 1. There is strong evidence to show that a considerable proportion of even the most unpromising cases can be cured. 2. In view of the hopeless and progressive nature of the malady, the operation would be justifiable if even a small percentage could be cured, or even greatly benefited. 3. No systematic attempt has been made to find what percentage of cures may be obtained, since modern methods have made the operation easy and safe, and that such attempts should be made. 4. There is so little danger in the operation of either death or unpleasant sequelæ. 5. Because of the freedom from pain or discomfort of any kind following the operation, which is in marked contrast to the discomfort following most other operations of equal severity. I recommend opening the skull by making a large osteoplastic flap over the region indicated by focal symptoms, when they are present, or over the Rolandic area on either side when there are

no focal symptoms. A careful examination should then be made by opening the dura widely, inspecting and palpating the brain and meninges, and by careful exploration with a grooved director, and any offending body, such as depressed bone, thickened dura, abscess, cyst, tumor, inflammatory exudate or edema, should be removed as far as possible. Most epileptic brains are edematous and the serum may be rapidly drained away by opening the dura and by inserting several grooved directors into the brain substance. Good results have followed more often when a large flap is made, and a large surface of the brain exposed. The flow of serum may continue for several days when a soft rubber drain is used.

Other Papers Read

The following papers were also read: "Report of a Case of Urethral Transplantation," by Dr. J. D. S. Davis, Birmingham, Ala.; "Operative Treatment of Tuberculous Joints," by Dr. H. J. Whitacre, Cincinnati, Ohio; "The Transverse Abdominal Incision," by Dr. S. M. J. Clark, New Orleans; "Transfusion, with a Note on Hemolysis," by Dr. G. W. Crile, Cleveland, Ohio; "Penetrating Wounds of the Abdomen," by Dr. Floyd McRae, Atlanta, Ga.; "Mortality in One Thousand Operations for Goiter," by Dr. Charles H. Mayo, Rochester, Minn.; "Elephantiasis of the Male Genitalia," by Dr. J. N. Baker, Montgomery, Ala.; "Anatomic and Physiologic Restoration vs. Removal of the Internal Generative Organs of Women," by Dr. J. E. Cannaday, Charleston, W. Va.; "Cancer of the Parotid Gland," by Dr. G. A. Hendon, Louisville; "Successful Operation for Vesicouterine Fistula with Loss of Function of Vesical and Urethral Sphincters," by Dr. R. S. Hill, Montgomery, Ala.; and "Hypoplasia in Relation to Health and Disease," by Dr. C. P. Noble, Philadelphia. The last-mentioned paper will appear in full in THE JOURNAL.

AMERICAN ROENTGEN RAY SOCIETY

Ninth Annual Meeting, held at New York, Dec. 28-30, 1905

(Concluded from page 216)

Surgical Treatment of Chronic Roentgen-Ray Dermatitis

DR. CHARLES ALLEN PORTER, Boston: There is always a time when the chronic Roentgen-ray lesions can be successfully eradicated by minor operations, but neglect has led to the necessity for major operations, in spite of which metastases and death will occasionally occur. No other agent is so potent in the production of multiple carcinomata in man. The most important changes are the rarefaction beneath the epidermis, with a total loss of papillæ and a telangiectatic condition of the blood vessels, disappearance of the glands, obliteration of the arteries and great increase in the connective tissue. The epidermis is thin and atrophic, with foci of epithelial proliferation, in some instances giving rise to papillary down-growths with keratoses, and in others to the invasive type of new growth. Apparently, the repeated exposures to the ray produce chronic changes in which the normal reparative power is lost. There is no constant change in the nerve trunks. In some instances the nerve fibers were replaced by connective tissue, and the nerves are compressed by the dense cicatricial tissue about them. This perineuritis may explain the extreme pain so characteristic of the lesion in the majority of cases. Of 44 cases recorded in the literature, 11 of which came under my observation, 6 were severe lesions of the ulcerative type, 4 beginning epithelioma and 34 undoubted carcinoma, with 8 deaths, a mortality of 25 per cent. There is always a latent period, usually one of years, and either keratoses or ulcerations precede the cancer. The only treatment which will prevent trouble is early removal by caustics or the knife of all suspicious lesions. When occurring on the backs of the hands, the lesions may be excised and the wound sutured or destroyed by liquid air or by carbon dioxide snow. When keratoses or ulcerations occur on the dorsal aspects of the fingers, and especially when the skin is dense, I advocate excision and skin grafting. If the primary grafts do not take owing to inadequate blood supply, the surface may be covered with grafts later, when connective tissue has formed

Healing by cicatrization sometimes occurs, but owing to the thinness of the epidermis and the liability to subsequent injuries, skin grafting is preferable. Moderately thin grafts take better than thick ones. Hemorrhage should be controlled before the application of the grafts, and pressure must be maintained for twenty-four hours.

DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: I differentiate between the acute ulcer and the chronic ulcer in Roentgen dermatitis. The former is no more likely to become carcinomatous than is any other ulcer. These chronic lesions should be operated on. An interesting analogy to the chronic Roentgen-ray burn is found in the senile keratoses and that exceedingly rare skin affection, xeroderma pigmentosum. All are the result of long-continued irritation by actinic energy, the sensitiveness of the skin varying, however. The Roentgen-ray skin is an extraordinary degree of senile skin. I advise excision, doing it early, when the lesions are few in number and the surrounding tissues in fairly good condition. I have treated two epitheliomas of this kind with Roentgen-ray exposures, and have found them as susceptible to such treatment as ordinary senile rodent ulcers, but I do not recommend that as a method of treatment, nor do I recommend the use of carbon dioxid snow for the destruction of these tumors larger than a wheat grain in size. For small tumors, liquid air and carbon dioxid snow are excellent means of eradication. Keratoses should be destroyed as rapidly as they develop. All these lesions are amenable to treatment so long as they are within bounds, and the thing to do is to destroy them when they are destroyable.

DR. CHARLES LESTER LEONARD, Philadelphia: The difficult thing to determine in this connection is the time when these lesions should be operated on and whether the individual is capable of recovering without operation. I believe that the lesions recur after operation. Is there anything that will cut short the conditions, and if there is not, will not the patient live longer without the operation? Many of these lesions are amenable to surgical treatment, and yet in many of the serious injuries the Roentgenologist has suffered have resulted from the solicitous intervention of his friends.

Roentgen-Ray Examination for Urinary Calculi

DR. CHARLES EASTMOND, Brooklyn: I made careful urine analyses in 80 cases examined with the Roentgen ray for calculi. Calculi were present in only 24 per cent. of the patients presenting classical symptoms of that condition, and in only 14 per cent. of the cases were the calculi in the suspected region, while in 41 per cent. of cases with very vague and uncharacteristic symptoms calculi were demonstrated. Therefore, the Roentgen-ray examination should form an important means of diagnosis in these cases.

Roentgen Ray in Mediastinal Tumors

DR. RUSSELL H. BOGGS, Pittsburg, briefly reviewed the conditions in which the ray is the only means of making a positive diagnosis of tumors of the mediastinum, and reported three cases, one of tumor, mistaken for aneurism, another pronounced as hysteria proved to be mediastinal tumor, and the third, in which a diagnosis was impossible until a radiograph was made, which showed the case to be one of tumor of the thymus. The diagnosis was confirmed by operation.

Tumor of Mediastinum

DR. W. S. LAWRENCE, Memphis: In the case which I report, the tumor, a black, non-pulsating mass, about six inches in diameter, occupied the entire upper central portion of the thorax, the chest wall bulging. The patient was rapidly losing strength and suffered considerable pain, and, later, cough. Several prominent surgeons diagnosed the case as one of dermoid cyst and sarcoma of the pleura, respectively. The first evidence of trouble was noticed in the summer of 1906 and consisted of bulging of the chest wall. Late in October, 1907, Roentgen treatment was begun. About twenty-eight treatments were given during a period of about two months. Improvement was prompt and continuous. At present the pa-

tient is feeling well, has gained in weight and the mass has almost disappeared.

Roentgen Ray in Therapeutics

DR. GEORGE C. JOHNSTON, Pittsburg: The usefulness of the Roentgen ray as a therapeutic agent has failed of recognition largely because of the fact that it was used by men who were not sufficiently familiar with the technic and the indications for its use. Success or failure in radiotherapy depend on the ability of the operator to produce with his apparatus a proper quality of radiation, to administer it in such quantities as to constitute a correct dose, and an acquaintance with the disease process, and the physiologic effect of the agent, sufficient to enable him to adjust his dosage so as to produce the reaction necessary to result in a cure. Needless to say, he must be thoroughly familiar with his apparatus in all its parts. Among the conditions in which the ray is indicated and in which it has proved useful, are the following: Acne, especially the pustular form; eczema, affections of the skin characterized by glandular hyperactivity; lupus vulgaris; syphilis, favus, tenia tonsurans; psoriasis, if the disease is limited in extent and essentially chronic; rodent ulcer, especially when small in size; epitheliomas on or about the eyelids; exophthalmic goiter, especially when accompanied by hyperthyroidism. In other cases, the ray has proved a useful adjunct to other treatment, or it has given the patient temporary relief, as in leukemia, Hodgkin's disease, tubercular glands, carcinoma, sarcoma.

Other Papers Read

The following papers were also read: "Further Study of the Sweet-Bowen Method of Localizing Foreign Bodies in the Eye," by Dr. C. F. Bowen, Columbus, Ohio; "Theory of Roentgen Ray," by Dr. L. I. Blake, Denver, Colo.; "Roentgenologic Technic," by Dr. P. M. Hickey, Detroit; "Roentgen Rays in the Diagnosis of Urinary Conditions," by Dr. Alfred T. Osgood, New York; "Twenty-five Cases of Aortic Aneurism Studied with Roentgen Ray," by Dr. Sidney Lange, Cincinnati; "Examination of Lungs with Roentgen Ray," by Dr. Henry Hulst, Grand Rapids, Mich.; "The Roentgenologist and His Specialty," by Dr. Percy Brown, Boston; "Roentgen Ray and Etiology of Cancer," by Dr. W. H. Dieffenbach, New York; "Surgical Treatment of Malignant Growths in Combination with the Roentgen Method," by Dr. Carl Beck, New York; "Treatment of Myoma by Roentgen Rays," by Dr. Albers-Schoenberg, Hamburg, Germany; "Localization of Foreign Bodies," by Dr. Willis F. Manges, Philadelphia; "Use of Fluoroscope in Removal of Foreign Bodies from Extremities," by Dr. C. F. Bowen, Columbus, Ohio.

Book Notices

TEXT-BOOK OF THE PRINCIPLES OF ANIMAL HISTOLOGY. By Ulric Dahlgren, M.S., Assistant Professor in Biology in Princeton University, and William A. Kepner, A.B., Adjunct Professor in Biology in the University of Virginia. Cloth. Pp. 515. Price, \$3.75. New York: The Macmillan Co., 1908.

For years we have been resigned to the annual succession of text-books on histology, each one differing from its predecessors and contemporaries by a degree so slight as to be appreciable only after microscopic examination. From a sense of duty, we read these books and approve them, as it is absolutely necessary that our histologic knowledge be brought up to date. The present book, in spite of faults, comes as a pleasant break in the general monotony, because it presents the subject from the comparative standpoint.

Practically all works on histology are based almost exclusively on human anatomy. A few authors have ventured to refer to the tissue elements of some domestic mammals and birds (dog, sheep, pigeon), but none has dared to stray outside of the barnyard into the wilds, for fear that the critics would stare aghast at any allusion to a vertebrate phylum humbler than the avian!

All physiologists and pathologists now base their work on the broad, comparative method. It is taken for granted

that every medical student will know his human physiology the better for a minute study of frog-reactions. The man studying cancer learns infinitely more from mice and men than from men alone.

In the present work the elementary tissues are discussed seriatim. Thus, in the chapter on bone, we are given an inkling of the phylogenetic origins of osseous structures, through a study of the skeletons of sponges, cuttle-fish, etc. Even after a perusal of the few lines devoted to the spicule-secreting mesoglycocal cells of the sponge, we feel that our concepts of the osteoblast and its possible origin have been widened. The chapters on the tissues that produce light, electricity and gas are very interesting, and, of course, unheard of in the ordinary medical text-books.

Unquestionably, the weak part of the book is the first, the general discussion of cell and cytoplasm. The cytologic definitions and nomenclature are needlessly imperfect, as they lack even that small degree of precision which is possible in the present stage of the science. Thus, the distinction between nucleolus and pseudonucleolus is not brought out clearly. After Wilson's elaborate clearing of the field, it seems a pity to have the terminology of centrosome, sphere and centriole muddled up again. Too dogmatic a stand is often taken, as, e. g., in the matter of trophopongia.

The definition of epitaelia is far from felicitous, and not at all in accord with the embryologic viewpoint and with the best usage.

There are many curious omissions which can hardly be excused on the plea that brevity demanded a suggestive and stimulating, rather than an exhaustive treatment, for many facts and principles quite as important as those included are omitted. Thus, in the discussion of the limitation of the size of cells (p. 11), no reference is made to the important factor emphasized so strongly by Loeb in "*Warum ist die Regeneration kernlöse Protoplastastücke unmöglich oder erschwert?*" Again, one wonders why, in the chapter on cardiac cells, no mention is made of the phylogenetically and ontogenetically important Purkinje type, which, from the chosen standpoint of the authors, probably throws more light on the meaning of the finished cardiac cell than all else.

Altogether, this book is strikingly uneven, a curious blend of the praiseworthy and the blamable, with the balance perhaps on the side of commendation. As it stands, it could not serve as a medical text-book, nor was it so intended. But it would be well for medical students if the catholic comparative standpoint of this book could be incorporated into some good text, for the book abounds in wide viewpoints and illuminating presentations of basic principles, such as would be of great value to the medical student as well as to the devotee of "pure science," e. g., the development of the idea of tissue from the phylogenetic standpoint (p. 14), or the discussion of the fundamental needs underlying the evolution of the connective tissues (p. 56).

DISEASES AND SURGERY OF THE GENITOURINARY SYSTEM. By Francis S. Watson, M.D., Lecturer on Genitourinary Surgery, Harvard Medical School. Assisted by John H. Cunningham, Jr., M.D., Visiting Surgeon to the Long Island Hospital, Boston. Vol. I, The External Genitals. The Prostate and Bladder. Vol. II, The Kidneys and Ureters. Cloth. Pp. 1101, with illustrations. Price, \$12.00 per set. Philadelphia: Lea & Febiger, 1908.

In the preface, the authors state that they desire to cover both the medical and surgical aspects of genitourinary diseases, according to our present state of knowledge.

In the first chapter, cavernitis is spoken of as being extremely rare, a view which is far from being generally accepted. Under balanitis, no mention is made of a specific form of balanitis, due to a spirochete and a vibrio, described first by Bataille and Berdal in 1859-1891 and later by Scherher and Müller in 1904. The colored illustrations in this chapter are not up to date and are out of keeping with the rest of the book. In the second chapter, specific urethritis is considered, but not enough space is given to treatment and scarcely a dozen words are allotted to non-specific urethritis. Endoscopy is described in characteristic style, but the endoscopic pictures illustrating the various pathologic conditions are poor both in execution and in descriptive value, but as these conditions are extremely hard to depict, some excuse

can be offered in this regard. In this chapter some mention should have been made of the capillary syringe of Guyon, which is usually considered superior to the old Keyes-Ultzmann syringe.

Strictures are well described and illustrated in two exhaustive chapters. The real merits of the work, first seen in these chapters, lie in its description of operative technic, the various operations being well covered.

The surgery of the prostate is taken up in detail. The authors encourage operative interference rather than any palliative measures. Considering the important place that cystoscopy occupies in the modern diagnosis and treatment of genitourinary diseases, more space and fewer generalities should have been devoted to it. The illustrations of observation cystoscopes are antiquated, and the technic of ureteral catheterization is disposed of in a few lines. The half-tones illustrating the various operations and steps in technic will serve as a valuable aid to the genitourinary surgeon.

The second volume begins with the examination of the urine, and while considerable space is given to the functional diagnosis of the kidneys, inasmuch as these are timely subjects, it is to be regretted that the chapter is not more complete. The subject of chromocystoscopy seems to be omitted. The chapters on kidney and ureteral surgery contain excellent descriptive and illustrative work. In the chapter on renal calculi commendable attention to exact detail seems to be carried to an excess in the list of foods to be avoided. If one had to follow such a scientific dietary in order to avoid renal stone, life would be indeed a burden. The arrangement by which the subject of tuberculosis is considered under one heading and not piecemeal in the different chapters is excellent, as it enables one to grasp the subject in its entirety.

The great subject of functional disturbances of the sexual organs is not considered in either volume, which seems an oversight. The ramifications of the subject of sexual neurosis may extend into every branch of medicine; and, as this subject is so little understood, any additional light would be greatly appreciated.

The book contains many excellent illustrations; the bibliography is exhaustive, and the statistics are complete.

THE LAW IN GENERAL MEDICAL PRACTICE. By Stanley B. Atkinson, M.A., M.D., B.Sc., Justice of the Peace for the County of London. Cloth. Pp. 239. Price \$1.50. London: Oxford University Press, 1908.

In taking up this book with its specific title and discovering that it was a British work, our first thought was the fear that it would be of little service in this country, owing to the difference in laws. An examination of the book, however, reveals the fact that, except in a few instances which the ordinary reader will readily recognize, law is not discussed so much in the concrete as in the abstract. The book is more of a series of advisory talks, imparting much of the information which some men have to obtain by hard knocks in the world of experience and which others are fortunate enough to acquire from their preceptors or their associates in medical practice. Atkinson has an interesting style and he is mainly practical. Although we can not recommend the book as a legal guide for physicians in this country, it will be found of interest as an advisory commentary on ethics and the everyday rules of conduct toward those with whom the physician has to deal.

ROTUNDA MIDWIFERY FOR NURSES AND MIDWIVES. By G. T. Wrench, M.D., Late Assistant Master Rotunda Hospital, with an Introduction by the Master of the Rotunda Hospital. Cloth. Pp. 324, with illustrations. Price, \$2.00. New York: Oxford Press, 1908.

This book, originating as it does from the famous Rotunda Hospital, should be of practical value to nurses, though it is primarily intended for midwives. As usual, in books of this kind, the opening chapters deal with the anatomy of the pelvis and the physiology of pregnancy. The remainder of the book is devoted to the management of labor, normal and abnormal, the complications and sequelae likely to be encountered, infant feeding and the care of the infant. The rules and regulations of the Central Midwives Board form an appendix. On the whole, the book is a disappointment and some of the teaching is far from commendable.

Medical Economics

A New Form of Insurance in England

Of organizing and promoting companies there is no end, and, in England, there is apparently no possible contingency in life against which one can not be insured. The latest proposition along this line and, so far as we know, the only one of its sort, is a company for the insurance of individuals against "excessive medical bills." "Excessive medical bills" is a dire catastrophe which is liable to happen to any one at any time and from which heretofore there has been no protection. Unfortunately, however, the promoter proved to be considerably in advance of his times and the company went into bankruptcy. This is from the *Medical Press and Circular* (London):

"In the bankruptcy court at Stockport, last week, a certain Mr. H. F. Mason was examined by the official receiver, the liabilities being £674 9s. 6d., and the assets nil. The bankrupt attributed his failure to non-success in floating a Medical Indemnity Insurance Company, whose primary object was insurance against 'excessive medical bills.' The company was registered in October, 1906, with a nominal capital of £50,000. According to the bankrupt, however, that year was a very bad one for company-promoting, and only £750 were subscribed. Then came disagreement with the solicitor, refusal by the board to issue a prospectus, and the eventual retirement of the directors. The company consequently collapsed and with it the promoter. We can not help shedding a tear at this lamentable still-birth. What if Mr. Mason had been successful and had obtained his £50,000? Without admitting the possibility of his clients receiving 'excessive medical bills,' we can imagine that medical attendants would have stepped across their door-steps with blithe hearts had they known that, whatever the charge for attendance, the sum would have been forthcoming from a well-capitalized insurance company. . . . We regret, however, that no one seems anxious to step into the breach made by this gentleman, and to tell medical men, one and all, that they have only to send in their bills, and that a trustworthy company will foot them at sight."

Certainly, this is a new and unexplored field for the promoter. We have had numerous instances of companies organized to insure the patient against sickness and injury and agreeing to furnish free medical services in event of disability. The only way in which such companies are able to do business is by making contracts with physicians to do work at absurdly inadequate prices. Mr. Mason's company, on the other hand, was to insure the patient not against injury or disease, but against the "excessive medical bills" which would follow disability. Whether or not this is a practical proposition from the actuary's standpoint, we can not say. It would certainly be preferable to the contract practice plan, from a physician's point of view while, if the premium remained the same, it would make no difference to the patient whether the company insured him against sickness or insured him against the cost of sickness. Mr. Mason certainly would have been an angel in disguise to the medical profession of England had he succeeded in securing the additional £49,250 of the capital. We doubt, however, whether the American public is sufficiently educated along the lines of insurance and high finance to justify such a plan in this country.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—Third Weekly Meeting

Surgery of the Intestines

INTESTINAL SUTURE

METHOD OF SUTURE.—Lembert's, Halstead's, Dupuytren's, Cushing's, Maunsell's, Connell's. Use of mechanical apparatus, Murphy's button, etc.

OPERATIONS ON INTESTINES

ENTEROTOMY.—Indications in acute intestinal obstruction, foreign bodies, polypi, etc. Technic of operation.

ENTEROSTOMY.—In small intestine: Formation of fecal fistula, indications, technic of operation. In large intestine: Inguinal colotomy, indications, technic. Lumbar colotomy, indications, technic.

ENTERO-ANASTOMOSIS.—Indications. Use of Murphy button, suture.

ENTERECTOMY.—In small intestine: Tumor, stricture, mesenteric tumor, gangrene of hernia or obstruction. In cecum: Tumor, tuberculosis, etc. In large intestine: Tumor, and acute obstruction from tumor. Indications, technic, and variations in technic in each case.

OPERATIONS FOR FECAL FISTULA AND ARTIFICIAL ANUS

Dissection of fistula and closure of bowels or enterectomy.

INTESTINAL OBSTRUCTION

Diagnosis. Indications for exploration. Technic in early cases; in late cases, enterostomy. Special technic in: (1) Strangulation by bands, (2) intussusception, (3) volvulus, (4) Meckel's diverticulum, (5) internal hernia, (6) obstruction by gallstones.

INTESTINAL PERFORATION IN TYPHOID FEVER

Frequency, incidence, diagnosis, indications and contraindications for operation. Technic: Anesthetic, incision, closure of perforation; formation of fistula, resection or anastomosis; toilet of peritoneum, drainage.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: Topeka, Feb. 9. Sec., Dr. R. A. Light, Chanute.
NEBRASKA: State Capitol, Lincoln, Feb. 3-4. Sec., Dr. E. J. C. Sward, Oakland.
NEW YORK: Albany, Feb. 2-5. Chief of Examinations Division, Dr. Charles F. Wheelock.
WYOMING: Cheyenne, Feb. 10-12. Sec., Dr. S. B. Miller, Laramie.

Medical Education and Nostrums, Third Letter

This is the third of a series of letters issued jointly by the Council on Medical Education and the Committee on Medical Teaching of the Council on Pharmacy and Chemistry.

To Medical Teachers:—This letter treats of the ultimate causes of the nostrum evil.

The practice of prescribing nostrums is commonly attributed to inefficient teaching of one or two branches in the medical colleges. Some blame the course of materia medica, others therapeutics, others prescription-writing, others pharmacy, others the clinical instruction. These are doubtless all concerned to some degree; but a little reflection must convince that the cause lies deeper than the failure on the part of any one or two departments of medical education.

An evil so deep-seated, so widespread, with so many ramifications, requires careful and calm study with regard to its origin and treatment. Limits of space, however, permit of suggestion merely, and not of exhaustive consideration.

Prominent among the underlying causes, of the conditions to which we have called your attention, are indolence and ignorance.

Indolence, namely, the shirking by the physician of his duty to make a careful study of the needs of each case. It is so much more convenient to give a mixture which the manufacturer says will do good, than to think out what the patient really requires. Thus, the physician gradually becomes more and more dependent on the ready-made pseudo-therapeutics of the nostrum-maker.

Ignorance, the want of sufficient fundamental knowledge in the various branches of medicine to realize the absurdity of the claims made for these nostrums. Counting on this, the manufacturer supplies a mass of technical descriptive matter, which is often intentionally so framed as to be beyond

The report on the methods of the Reed & Carnrick Co. (THE JOURNAL, Oct. 5, 1907, xlix, 1198) illustrates one phase of this matter. It will repay some serious thinking.

Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of the State of Georgia, reports the written examination held at Atlanta, Oct. 13-14, 1908. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 80. The total number of candidates examined was 32, of whom 30 passed and 2 failed. The following colleges were represented:

	PASSED	Year Grad.	Per Cent.
College			
International Med. Miss. Coll.	(1908)	85	86
Atlanta School of Med.	(1908) 80	83	85
Howard University	(1906)	80	81
University of Louisville	(1908)	86	87
Jenner Med. Coll.	(1908)	82	
Tulane University of Louisiana	(1908)	89	
Maryland Med. Coll.	(1908)	84	86
University of Maryland	(1907) 87	(1908)	87
College of P. and S., Baltimore	(1890)	80	
University of Michigan	(1908)	87	
Columbia Univ. Coll. of P. and S., New York	(1903)	89	
Syracuse University	(1908)	91	
Cornell Univ. Med. Coll.	(1907)	83	
North Carolina Med. Coll.	(1908)	82	
Leonard School of Med.	(1908) 80	83	86
Chattanooga Med. Coll.	(1898)	83	
College of P. and S., Memphis	(1908)	89	
University of Nashville	(1908)	81	83
University Coll. of Med., Richmond	(1908)	91	
	FAILED		
University of Louisville	(1908)	78	
University of West Tennessee	(1908)	77	

Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of the State of Georgia, sends the following report of reciprocal licenses issued by that board since May 5, 1908:

LICENSED THROUGH RECIPROCITY			
College.	Year Grad.	Reciprocity with	
Howard University, Washington.....	(1886)	Dist. Colum.	
Rush Med. Coll.....	(1890)	Indiana	
American Med. Miss. Coll.....	(1901)	Missouri	
Illinois Med. Coll.....	(1901)	Kentucky	
University of Maryland.....	(1900)	N. Carolina	
University of Maryland.....	(1905) (1907)	Maryland	
University of Michigan.....	(1906)	Michigan	
University of North Carolina.....	(1908)	N. Carolina	
Jefferson Med. Coll.....	(1887)	Dist. Colum.	
Jefferson Med. Coll.....	(1903)	Michigan	
University of Nashville.....	(1900) (1901)	(2, 1908)	Tennessee
University of Tennessee.....	(1900)		Tennessee
Memphis Hospital Med. Coll.....	(1890)		Tennessee
University Coll. of Med., Richmond.....	(1905) (1908)		Virginia
Wisconsin Coll. of P. and S.....	(1899)		Wisconsin

The following were licensed under the exemption clause:

College.	Year Grad.
Howard University, Washington.....	(1894)
Atlanta Med. Coll.....	(1890)
Baltimore Med. Coll.....	(1893)

Dr. G. T. Sikes, secretary of the North Carolina Board of Medical Examiners, reports the written examination held at Winston-Salem, June 10, 1908. The number of subjects examined in was 13; total number of questions asked, 90; percentage required to pass, 80. The total number of candidates examined was 121, of whom 95 passed and 26 failed, including one non-graduate. Eight reciprocal licenses were issued at this examination. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent
Georgetown University.....	(1906) 89.9;	(1908)	93.1
Atlanta Coll. of P. and S.....	(1908)*		
Debnorn Med. Coll.....	(1907)		80.1
Baltimore Med. Coll.....	(1898) 88; (1906) 80.7;	(1908)	82.2
Maryland Med. Coll.....	(1903) 82;	(1907)	94.1
College of P. and S. Baltimore.....	(1907) 89.2;		89.5
University of Maryland.....	(1896) 80.8; (1905) 83;	(1906)	80.2,
	80.8; (1907) 80.1, 87.7, 93.1;	(1898)	80.2,
	83.9, 86.8, 87.3, 87.4, 88.5, 89.7, 90.9.		84.2,

Woman's Med. Coll., Baltimore.....	(1908)	90.7
Johns Hopkins Med. School.....	(1908)	91.1
North Carolina Med. Coll. (1905) 84.4; (1908) 80, 82.1,		82.6,
88.2.....		
University of North Carolina, (1907) 84.1; (1908) 80.6, 82.5, 84.7,		
86.7, 87.6, 87.6, 88.2, 88.2, 90.2, 90.3, 91.1, 92.1.....		
Leonard School of Med., (1908) 86, 80, 80.1, 80.5, 82.3, 83.5, 83.7,		
83.7, 84.6, 87.6, 86.9, 87, 87.5, 91.2, 92.3.....		
Columbia University, Coll. of P. and S., New York. (1901)		84.8
University of Pennsylvania.....	(1903) 87.5 (1907)	86.7
University of the South.....	(1907)	85.7
University of Tennessee.....	(1905)	80.6
Jefferson Med. Coll., (1906) 87.2; (1908); 81.1, 84.1, 88, 89.7,		
90.1, 90.3, 90.9, 91, 91.5, 91.8, 92.9, 93.1.....		
University of Nashville.....	(1907) 81; (1908)	80.
Tennessee Med. Coll.	(1901) 81.4; (1908) 83.7, 84.2	
Medical Coll. of Virginia.....	(1908) 86.1, 91.1, 91.7	
University Coll. of Medicine, Richmond.....	(1908) 83.4, 87, 87.5, 87.8	
University of Virginia.....	(1897)	90.1

PAILED

Atlanta Coll. of P. and S.	(1900)	61.1
Baltimore Med. Coll.	(1908)	77.
Maryland Med. Coll.	(1908)	75.
University of Maryland.	(1907)	73.3
College of P. and S., Baltimore.	(1908)	77.8
New York Univ. Med. Coll.	(1879)	66.2
University of North Carolina.	(1908)	77.1
North Carolina Med. Coll. (1905) 66.9; (1907) 77.5; (1908) 75.		77.
Leonard School of Med.	(1905) 65.5; (1908) 72.6	78.9
University of Tennessee. (1904) 61.3; (1905) 69.9; (1907)		74.4
University of the South.	(1901)	75.3
Moharry Med. Coll.	(1905)	66.
University of Nashville.	(1908)	68.3
Chattanooga Med. Coll.	(1906)	76.6
Knoxville Med. Coll.	(1908)	69.9
University Coll. of Med., Richmond. (1907) 76.3; (1908)		79.

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
Atlanta School of Medicine.....	(1908)	Georgia
Atlanta College of P. and S.....	(1908)	Georgia
Baltimore Med. Coll.....	(1907)	W. Virginia
New York Medical Coll. and Hosp. for Women.....	(1879)	New York
University of Tennessee.....	(2, 1908)	Georgia
Tennessee Med. Coll.....	(1905)	Georgia
College and year of graduation for one reciprocity candidate not known.....		Georgia
*No percentage given.		

AMERICAN

Titles marked with an asterisk (*) are abstracted below

January 9

- 1 *Pulmonary Embolism Following Operation. C. L. Gibson,
New York.
- 2 Case of Addison's Disease, with Autopsy. C. H. Lewis, New
York.
- 3 *C... .. ties of the Penis and Their Influence on
... Course of Gonorrhea. E. W. Ruggles,
- 4 *... .. of Drainage in Abscess of Appendix.
R. M. Harbin, Rome, Ga.
- 5 Conservation of Hearing in the Radical Mastoid Operation.
S. Oppenheimer, New York.
- 6 Medical Education in Russia. L. Louria, Brooklyn, N. Y.
- 7 Hemolytic Properties of Cancer Serum. A. S. Blumgarten,
New York.
- 8 New Apparatus for Intrathoracic Operations Under Differ-
ential Pressure. W. Meyer, New York.

1. **Pulmonary Embolism.**—Gibson calls attention to the necessity of inquiry into the causes of pulmonary embolism following operations, often of a quite benign character, properly performed on subjects whose physical condition makes them an apparently good risk for operations for hernia, interval removal of appendix, female pelvic operations, etc. He records and discusses five cases and emphasizes the following three points:

First.—The age of the patients—young individuals are more or less exempt, and if affected may perhaps recover, presumably on account of the yielding elasticity of their vessels, which may allow the blood to push its way beside a clot. The age from forty to sixty being most afflicted, we are probably dealing with conditions of vascular changes over which the operator has little or no control. We should, however, be more on the alert to recognize or anticipate such changes, and their existence should be considered in operations which are a matter of expediency rather than of actual necessity.

Second.—Practically all those cases of embolism follow interventions below the diaphragm and even lower, "below the belt." Therefore, we must study the local conditions more closely for further light.

Third.—At present there is little or no justification in rushing patients out of bed as a routine measure, it being granted that in individual cases and conditions a pre-existent or suspected tendency to stagnation of coagulation, should be counteracted by this and other measures.

3. Abstracted in *THE JOURNAL*, July 11, 1908, p. 160.

4. Drainage in Appendicular Abscess.—Harbin says that:

1. Statistics of recoveries from drainage of cases of diffuse peritonitis are of no value unless the date of the perforation is known.
2. In the absence of proper facilities, it is better to adopt the Ochsner procedure and the Fowler position, pending consultation.
3. The doubtful propriety of waiting for the walling off process, may merge a certain number of cases into a diffuse form of peritonitis.

4. Deferred operations, under favorable conditions, give the patient time to undergo a sort of autoinoculation with bacterial vaccines.

5. The uncertain course of peritonitis argues for immediate operation.

6. Infections low in the right iliac fossa can safely be trusted to nature.

7. Short incisions and few manipulations should be the rule.

8. As a rule, it is unsurgical to leave the same gauze in the wound over four or five days.

9. The right lateral and ventral positions are of great value in supplementing other methods of drainage.

10. Drainage in diffuse peritonitis should not only give exit to pus, but should provoke a reverse current of serum out the wound.

11. Intermittent injection of normal salt solution seemed to gain a greater amount of absorption in the rectum than the instillation method.

12. In well defined abscess cases there was a mortality rate of 4.5 per cent.

New York Medical Journal

January 9

9 Theories and Problems of Heredity. J. Wright, New York.

10 *Present Status of Hysteria. T. A. Williams, Washington, D. C.

11 *Puerperal Sepsis. H. Weil, New York.

12 Myocarditis. P. H. Markley, Camden, N. J.

13 Relationship Between Dental and Systemic Disturbances. W. J. Lederer, New York.

14 Spontaneous Absorption of Incipient Cataract. S. Moskowitz, New York.

15 Acute Gastric and Duodenal Dilatation Treated by Gastrojejunostomy, with Recovery. G. Torrance, Birmingham, Ala.

10. *Hysteria*.—Williams considers that the most authoritative contribution to the elucidation of the subject of hysteria ever presented, is afforded by a recent discussion at the Paris Neurological Society. He enumerates the eight different heads of inquiry, and summarizes the discussion. The first question, whether there is a special group of symptoms that can be exactly reproduced and made to disappear under suggestion, is answered unanimously in the affirmative. The second question as to the use of the word pithiatism was postponed. With regard to the third question, the relationship of hysterical stigmata to suggestion, it was decided by the majority that medical suggestion is at the root of a vast majority of hysterical symptoms. The relation of suggestion to reflexes and involuntary functions was held to vary. The following reflexes under certain conditions were considered modifiable: Skin, false pharyngeal, and pupillary reflexes of dementia præcox. Unaffected by suggestion are the tendon reflexes, the true faucial reflexes, pupillary reflex, contracted visual field, dermatographia, urticaria, edema, ulceration and fever. The connection of the above-named phenomena with the special group of symptoms named in question, one was variously regarded as casual, coincident and possible trickery. The application of the term suggestion, whether it should be applied to all acts that influence the mentality, or only to those implying a pejorative idea—that is, such as correspond to the use of the word insinuation—reserving the term persuasion for those of an ameliorative character, is well discussed. From those considerations it follows that there is a fundamental distinction between suggestion and persuasion, and this consists of the subject's entire unconsciousness, the absence of realization of the manner in which a new idea has been imposed on him during suggestion. Sometimes he is even ignorant of having received anything new. Persuasion, on the other hand, appeals to the individual's own power of reflection, and this makes him aware of the whole process of reasoning by which he becomes convinced. A false conclusion derived from persuasion is false, not in virtue of incorrect reasoning, but by error in the premises. The *folie raisonnante* of the paralytic furnishes another striking example of autopersuasion. Suggestibility is annihilated by skepticism, the habit of suspension of judgment and doubt. It is diminished, while persuadability is fostered by rational education. It requires time to persuade and often to influence the feelings, but a suggestion may be instantaneous and is generally rapid.

11. *Puerperal Sepsis*.—Weil says that certain facts are absolutely established: 1. The uterine walls can and do absorb,

and this power is greater following abortion and labor with its more numerous veins and lymphatics. 2. The products of germ metabolism are poisonous; these poisons called toxins, when derived from pathogenic bacteria, are capable of producing violent symptoms and death when injected into animals. 3. The lochial discharges of a puerperal infection are loaded with pathogenic germs and toxin. Each of these facts are easily demonstrated and incontestable. 4. This being the case, it only remains to demonstrate that absorption plays an important part in the disease.

Boston Medical and Surgical Journal

January 7

16 Histologic Aspect of Professional Relationship. C. E. Edson, Denver.

17 *Psychotherapy. J. J. Thomas, Boston.

18 *Acute Intussusception. Its Early Diagnosis and Treatment. H. S. Rowen, Boston.

19 Composition of Small Curds in Infants' Stools. F. B. Talbot, Boston.

20 *Association Test and Psychoanalysis. A. H. Ring, Arlington, Mass.

17. *Psychotherapy*.—Thomas discusses various methods of exercising psychotherapy, the method of surprise, of purposeful neglect, of isolation, the re-educational method, psychoanalysis, hypnotism, etc., and criticizes the Emmanuel movement.

18. *Intussusception*.—Rowen discusses the early diagnosis and treatment and reviews the literature of this subject. He impresses the importance of early recognition of the condition by means of: 1, The mother's story; 2, the paroxysms of shock, abdominal pain; 3, the early discovery of blood-stained mucus in digital examination of the rectum. This last point he has not found mentioned by the authorities.

20. *The Association Test*.—Ring describes, in a practical manner, the mode of application of the association test and psychoanalysis in mental troubles. He emphasizes Putnam's suggestion that at times it may be harmful to require patients to recall unhappy episodes, especially those connected with unfortunate sexual experiences. But the same end may be accomplished by getting the patient's main train of thought and substituting by discussion another train of association starting from the same point but having a happy tone for its accompaniment.

Lancet Clinic, Cincinnati

January 2

21 Surgery of the Biliary Tract. G. Goodhue, Dayton, Ohio.

22 Obscure Fractures Discovered by X-Ray Examination. S. Lange, Cincinnati.

23 Hyperchlorhydria and Its Treatment Based on Animal Experiments. M. M. Portis, Chicago.

24 Hyperthyroidism and Basedow's Disease. A. Schachner, Louisville, Ky.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December

25 *Hemolytic Test for Malignant Tumors. G. W. Crile, Cleveland, Ohio.

26 The Omentum as a Factor in Abdominal Surgery. C. C. Norris, Philadelphia.

27 *Treatment of Postpartum Hemorrhage. J. C. Edgar, New York.

28 Treatment of Accidental Hemorrhage and Placenta Praevia. G. L. Brodhead, New York.

29 *Cystocele. I. S. Stone, Washington, D. C.

30 *Injuries to the Bladder During Hernia Operations. R. E. Skeel, Cleveland, Ohio.

31 *Gastric Tetany, Operation and Recovery. J. Y. Brown and W. Englebach, St. Louis, Mo.

32 *Treatment of Typhoid Fever Perforation. J. D. S. Davis, Birmingham, Ala.

33 Cancer of the Cervix Uteri in Pregnancy. I. S. Stone, Washington, D. C.

34 *Anatomic Basis for Successful Repair of the Female Pelvic Outlet. I. S. Haynes, New York City.

35 Intra-abdominal Route for the Removal of Calculi from the Pelvic Portion of the Female Ureter. D. Blissell, New York.

36 *Some Old Fallacies in Retroversion Surgery Revived. A. Goldspohn, Chicago.

37 *Repair Rather Than Removal of the Generative Organs of Women. J. ... W. Va.

38 *Rheumatism in ... W. Va.

39 *Idem. L. A. ... W. Va.

40 Idem. J. R. Stivers, Brooklyn.

25. Published in full in *THE JOURNAL*, Dec. 12, 1908, p. 2036.

27. *Postpartum Hemorrhage*.—Edgar says that, as in primary, so in secondary postpartum hemorrhage, the most satisfactory treatment is preventive. The lying-in-woman

should be protected against, 1, mental emotions; 2, disturbances of the general circulation, and 3, blood conditions that might cause hemorrhage during the puerperal state. If the third stage of labor, as well as the first few days of the puerperium, are carefully managed, the four main causes of secondary postpartum hemorrhage will be avoided. These are, 1, the retention of placental tissue; 2, the retention of membranes; 3, of blood clots, and 4, a distended bladder or rectum. The patient should not be allowed to assume the erect position until involution is well advanced, and sexual intercourse should be prohibited for two months. The curative treatment of secondary postpartum hemorrhage, as in primary hemorrhage, consists in making sure that the uterus is completely emptied, and in securing complete uterine contraction.

29. **Cystocele.**—Stone reviews the literature and discusses the operative results. He says that the operation of Arx is adapted to the severer forms of prolapse of both uterus and bladder. The method of Gersuny, while ingenious and a great improvement on the old anterior colporrhaphy, fails to meet with full approval, because it turns irregular rugae into the base of the bladder and also fails to reattach the bladder higher up and farther out toward the pelvic wall. The methods of Freund, Fritsch and Wertheim do not appeal to him, for he has always succeeded in curing his patients without leaving the uteri in their vagina. The method proposed by Alexandroff and those who use the base of the broad ligaments as tractors or suspensors, has not been in use long enough fully to test its merits. Finally he reserves the Snger technic for a class of cases which are most difficult of cure by any of the usual methods by vaginal narrowing or by any operation on the ligaments of the uterus.

30, 32, 36, 37.—Abstracted in THE JOURNAL, Oct. 24, 1908, pp. 1458-1459.

31. **Gastric Tetany.**—Brown and Englebach report a case in a woman of 48 as follows: Ether anesthesia, median incision. Examination of the stomach revealed a cicatrix encircling about three-fourths of the pylorus, causing complete obstruction of that orifice. No adhesions around the pylorus. Stomach greatly dilated. Walls markedly hypertrophied. No other abnormal findings in the abdomen. Short loop posterior gastroenterostomy, suture method, was performed. The case is noteworthy in that recovery ensued. Prophylactic treatment is important, namely caring for the lesions before they cause serious pyloric obstruction—another argument for radical surgical treatment of chronic ulcers, cholelithiasis, etc. Symptomatic treatment during attacks—stomach lavage, hypodermoclysis, proctoclysis and morphin hypodermically—is indicated. Radical surgical treatment is urged.

34. **Female Pelvic Outlet.**—Haynes discusses at length the anatomy of the pelvic outlet and the function of the structures described, and states that the levator ani muscle, especially its pubococcygeal (puborectal) portion is the important contractile element present. He discusses the production, effects, and diagnosis of pelvic laceration, and describes a flap-splitting operation in which no tissue is lost, the exact site of the lesion is exposed, which is easy of execution and rapidly performed, and in which all sutures are buried.

38. **Rheumatism in Children.**—Kerr states that as a result of the closer study of the child, which is a product of recent years, we are now cognizant of the fact that rheumatism, as it affects the young child, is an entirely different proposition from the same disease in adult life. It is now a well-recognized fact that in acute rheumatism in children the joints largely escape. Irreparable damage is often done to the heart, without any evidences of an arthritis, or of the usually recognized symptoms of rheumatism. The earliest possible recognition of acute rheumatism in a young child is afforded by a correct estimation of the functional capacity of the heart. He reports the Herz arm flexion method and describes his own, which consists in giving the child a small dose of tincture of digitalis (1 minim to a child of 7 years) and noting the effect on the pulse. If there is an appreciable difference in the rate or quality of the pulse under conditions similar to those which preceded the ingestion of that dose, it is suggestive of functional perversion.

39. **Id.**—McClelland insists that removal of tonsils and adenoids removes a source of rheumatic infection.

Bulletin Johns Hopkins Hospital, Baltimore

December

- 41 *Comprehensive Plan for Treatment of Tuberculosis Problem. G. Bloede, Baltimore.
- 42 *Axillary Diastolic Murmur in Aortic Insufficiency. R. Cole and A. B. Cecil, Baltimore.
- 43 *Clinical Features of Cardiac Disease. G. A. Gibson, Edinburgh.
- 44 *Practical Value of the Demonstration of *Spirocheta pallida* in the Early Diagnosis of Syphilis. J. T. Geraghty, Baltimore.
- 45 *Contrast in the Excretion of Chlorin in Influenza Pneumonia and in Ordinary Lobar Pneumonia. L. G. Rowntree, Baltimore.

41. **Tuberculosis Problem.** Bloede's comprehensive plan for the treatment of tuberculosis is practically identical with that in successful operation at the Victoria Hospital, Edinburgh, as described by Dr. Phillips in the *Boston Medical and Surgical Journal*, Oct. 22, 1908, and abstracted in THE JOURNAL, Nov. 7, 1908, p. 1639. The author gives credit to Dr. Phillips.

42. **Axillary Diastolic Murmurs.**—Cole and Cecil report a series of cases, and attempt to show that it is the rule, rather than the exception, that the diastolic murmur or aortic insufficiency is transmitted loudly to the axilla, and furthermore that it is not a transmission of the murmur toward the apex in the general acceptance of this statement, but that in most cases there is a second area of greater intensity above and outside the apex. He also states that while in many cases the murmur is heard continuously as one passes outward from the sternum to the axilla, becoming fainter and fainter, in other cases the murmur becomes inaudible in the region of the nipple, and is again heard in the axilla; or in rare cases the murmur may be entirely inaudible over the heart and at the base, and only be heard, at times at least, outside the apex. For this axillary diastolic murmur they suggest the term aortic axillary diastolic murmur.

43. **Cardiac Disease.**—Gibson discusses the pain of angina pectoris, which is of the "referred" or "somatic" variety. He refers approvingly to Mackenzie and Head's explanation, and the fact, shown by Morrison and himself, of the correspondence between the side of the heart affected and the localization of the pain. It has been shown by Eichhorst and Gibson that wasting of the muscles and changes in the texture of the skin are often found in the painful regions. Gibson has further demonstrated that when muscular atrophy is found, the myotatic irritability may be increased, exactly as in the case in arthritic muscular atrophy, while the electric reactions show a distinct increase, both as regards faradism and galvanism. He further discusses the alterations in the eye and the disturbances in the rate and rhythm of the heart. In regard to the last named, he discusses the different types of bradycardia, and adds that certain tracings shown prove that it is not always conductivity that is impaired, but that excitability may be lessened. He further states that a heart block may take place higher up than the usual location in the auriculoventricular band, namely, at the sino-auricular junction, and refers to a tracing, previously published by Ritchie and himself, which seems most easily explicable on the supposition that certain of the smaller waves which occur among, but do not accord with, the rhythm of the auricular impulses are produced by the sinus contraction. With regard to tachycardia, the tracings show that the increased rate is largely dependent on the presence of premature systoles. We may assume an increased production of the rhythmic stimulus at the sino-auricular junction of Keith, which must be regarded as the pacemaker of the whole heart, except in cases in which the impulses are blocked. The ventricle, however, may initiate a rhythm of its own.

44. **Diagnosis of Syphilis.**—Geraghty asserts that his investigations show conclusively that the *Spirocheta pallida* can be found with comparative ease in primary sores—90 per cent. of his own cases—in 15 minutes. In his genitourinary clinic smears are made from all venereal sores as a matter of routine, and if *S. pallida* is found, specific treatment is at once begun.

45. **Excretion of Chlorin in Pneumonia.**—Rowntree's investigations show that:

1. The retention of chlorin did not exist in the cases of influenza pneumonia studied to nearly so marked a degree as is usually found in acute lobar pneumonia.
2. In uncomplicated cases of influenza pneumonia there may be a normal daily excretion of chlorin; if it is reduced, the reduction is not very great and does not remain low, but steadily increases by lysis till normal is reached.
3. There is a tendency for the amount of chlorin in 10 c.cm. of urine and the daily total output of chlorin to run more or less parallel in their fluctuations.
4. The quantity of urine during the course of influenza pneumonia is not greatly diminished, and the amount of chlorin in 10 c.cm. of urine is not markedly low; the urine has a slight tendency to decrease in quantity during convalescence, while the amount of chlorin in 10 c.cm. of urine steadily increases to normal.
5. In influenza pneumonia a large quantity of urine is not usually associated with a markedly low amount of chlorin in 10 c.cm. of urine, as is usually the case in ordinary lobar pneumonia.

Journal of Biological Chemistry, Baltimore

December

- 46 *Mode of Oxidation of Phenyl Derivatives of Fatty Acids in the Animal Organism.* H. D. Dakin, New York.
- 47 *Chemical Studies in Cytolysis.* A. E. Taylor, Berkeley, Cal.
- 48 *Conversion of Glycogen into Sugar in the Liver.* A. E. Taylor, Berkeley, Cal.
- 49 **Antagonism of Alcohol to Carbolic Acid.* A. E. Taylor, Berkeley, Cal.
- 50 *Blood Clot of Limulus Polyphemus.* C. L. Alsberg and E. D. Clark, Boston.
- 51 **Effect of Diet on the Maltose-Splitting Power of the Saliva.* C. H. Neilson and M. H. Scheele, St. Louis.
- 52 *The Chemical Composition and Toxicity of Ixerbylla Sonora.* J. T. Emerson and W. H. Welker, New York.
- 53 **The Inhibiting Effect of Potassium Chlorid in Sodium Chlorid Glycosuria.* T. C. Burnett, Berkeley, Cal.
- 54 **The Uric Acid Excretion of Normal Men.* P. J. Hanzlik and P. B. Hawk, Champaign, Ill.
- 55 *Adsorption of Diastase and Catalase by Colloidal Protein and by Normal Lead Phosphate.* A. W. Peters, Champaign, Ill.

49. **Antagonism of Alcohol to Carbolic Acid.**—Taylor shows by experiments on yeast that alcohol does not reduce in the least the antiseptic action of carbolic acid. On the contrary, with high concentrations of alcohol and low concentrations of carbolic acid, the alcohol seemed to increase the toxicity of the carbolic acid. A 1 to 100,000 concentration of carbolic acid was more toxic in the presence of 10 per cent. of alcohol than without it. These experiments tend to prove that there is no chemical detoxication of carbolic acid by ethyl alcohol, and that the effect observed in therapeutic practice must rest on some physical basis.

51. **Maltose-Splitting Power of the Saliva.**—The experiments of Neilson and Scheele show that a change in the diet produces a change in the maltose-splitting power of the saliva. The change is parallel to the change in the amylolytic power of the saliva on the same diets. As the amylolytic power of the saliva increases on a carbohydrate diet, the maltose-splitting power increases in approximately the same ratio. On a protein diet the amylolytic power and the maltose-splitting power decreases in the same ratio. These experiments seem to add further proof in favor of adaptation to diet.

53. **Inhibition of Salt Glycosuria.**—Burnett finds that while sodium chlorid injected into rabbits will produce glycosuria, the addition of potassium chlorid to the solution injected reduces or prevents the glycosuria. Calcium chlorid acts similarly, but if the injection is begun with sodium chlorid plus calcium chlorid and after sugar appears, the injection fluid is changed to sodium chlorid plus potassium chlorid, the amount of sugar increased. The same holds good if the order of the injections is reversed. According to Loeb a pure sodium chlorid solution produces ordinary cytotoxicity and also a process called "black disintegration." He found that the addition of calcium chlorid inhibited the cytotoxicity, while the addition of potassium chlorid inhibited the "black disintegration." In view of this the above results are clear. The addition of one salt, for example, potassium chlorid, to the injection fluid, prevents one of the destructive processes, without causing a complete disappearance of it, for there is the other destructive process still active. When sodium chlorid plus potassium chlorid is substituted for sodium chlorid plus calcium chlorid, or vice versa, there is an additive effect; either the cells which are partially injured by the one combination, are further injured by the second, or a new lot of cells may be injured by the substituted combination of salts. In either case

the result would be an increase in the amount of sugar in the urine.

54. **Uric Acid Excretion.**—Hanzlik and Hawk conclude an investigation of the uric acid excretion of normal men as follows: 1. The average daily excretion of uric acid for ten men, ranging in age from 19 to 29 years, and fed a normal mixed diet, was 0.597 gram, a value somewhat lower than the generally accepted average of 0.7 gram for such a period. 2. The average daily protein ingestion for these same subjects, when permitted to select their diet, was 91.2 gram, or 1.33 gram per kilogram of body weight.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

December

- 56 **Idiopathic Status Hemipilepticus and Genuine Focal Epilepsy.* H. H. Hoppe, Cincinnati.
- 57 **Delayed Apoplexy (Spaetapoplexie) with Report of Case.* A. R. Allen, Philadelphia.
- 58 **Symptom-Complex of a Lesion of the Uppermost Portion of the Vertebral Arteries.* W. G. Spiller, Philadelphia.

56-57. Abstracted in THE JOURNAL, July 11, 1908, p. 163, 164.

58. **Symptom-Complex from a Lesion of the Vertebral Arteries.**—Spiller emphasizes a clinical picture, the complement of that caused by occlusion of the posterior inferior cerebellar artery, as reported by him in the same journal, June, 1908. He describes the anatomy of the anterior spinal arteries and points out that the area supplied by them is chiefly the anterior and middle portions of the medulla oblongata. He reasons *a priori* that in their occlusion we should expect to find paralysis of all the limbs, trunk and neck, whereas the reflexes necessary to life would be preserved. The face would not be affected. The tongue might escape, as the hypoglossus nerve has at least a portion of its origin above the origin of the anterior spinal arteries, but it might be involved by implication of the vertebral. As the lemniscus probably conveys fibers of deep sensation, this form of sensation would probably be disturbed. If the lemniscus contains tactile fibers, tactile sensation would be affected. If the symptom-complex were unilateral the disturbance of sensation referred to and that of motion would probably be on the same side of the body, as all the fibers concerned with these functions have decussated at the level in question. If the lesion extended lower, sensation might be affected on the side opposite to that of the disturbance of motion, or even on both sides of the body. The tendon reflexes are not infrequently lost when the cerebellum or fibers connecting with it are involved, and as in the lesion under consideration the cerebello olivary fibers would be implicated, it is possible that the tendon reflexes would be lost instead of exaggerated, although this loss might be due to other causes. The vagus and glossopharyngeus should escape, at least in great part. Ataxia probably would not be observed because of the motor paralysis, or the escape of important cerebellar fibers. Occlusion of the vessels in the posterior part of the brain is more likely to occur in syphilitic arterial disease, and transitory quadriplegia might be caused by temporary interference with this vascular supply. Spiller reports a case that probably belongs to the above described type.

Journal Arkansas Medical Society, Little Rock

November

- 59 **Secondary Pancreatitis.* F. B. Young, Springdale.
- 60 *Calcified Fibroma of the Ovary.* A. Watkins, Little Rock.
- 61 *Acute Catarrhal Bronchitis.* J. A. Robertson, Hot Springs.
- 62 *Treatment of Pneumonia.* J. W. Melton, Alum, Ark.
- 63 *Idem.* H. H. Niehuss, Wesson.

59. Abstracted in THE JOURNAL, July 18, 1908, p. 250.

Journal Missouri State Medical Association, St. Louis

December

- 64 **Treatment of Visceral Ptosis by Respiratory Exercises.* C. Shattinger, St. Louis.
- 65 *Suitable Patients for the Missouri State Sanatorium for Incipient Pulmonary Tuberculosis.* O. H. Brown, St. Louis.
- 66 *Clinical Reports from Mt. St. Rose Hospital.* S. Cameron, St. Louis.
- 67 *Responsibility of Boards of Health.* A. H. Hamel, De Soto, Mo.
- 68 *Work of the St. Louis Health Department in Its Relation to Tuberculosis.* H. W. Bond, St. Louis.

64. **Visceral Ptosis.**—Shattinger says that while the importance of strengthening the abdominal muscles is recog-

nized the training of them in their most important functions as respiratory muscles is generally overlooked. As muscles of expiration their function is well recognized but as inspiratory muscles it is not so well known. During the inspiratory descent of the diaphragm their tension prevents downward displacement of the viscera which instead are pressed laterally against the lower ribs and thus kept from being drawn inward by the contracting diaphragm. Were the costal attachments of the latter not thus fixed, its excursions would become much less effective. Weakness of the supporting apparatus of the abdominal viscera consequently is weakness of the breathing apparatus. This point of view becomes of the greatest practical consequence when the abnormalities of the thorax and diaphragm found in splachnoplethosis are taken into consideration. To estimate fully the influence such abnormalities must have on the position of the viscera within the abdominal cavity, it is necessary to keep in mind that the upper part of the latter should occupy about half of the thorax and that the stomach, spleen, liver and kidneys are firmly attached to the diaphragm. A rational therapy of visceral ptosis therefore demands that attention be not narrowly centered on the abdomen but be directed toward utilizing the anatomic physiologic and pathologic facts presented. Accordingly the treatment of this disease should include.

- 1 Development of the abdominal muscles in general, and in the direction of adding to their strength as auxiliary agents of inspiration in particular
- 2 Increase of pressure and furtherance of the circulation of blood and lymph within the abdomen
- 3 Enlargement of the thorax especially of its lower half
- 4 Development of the diaphragm and elevation of its domes

Journal of the Medical Society of New Jersey, Orange December

- 69 The Psychic Element in Medical Practice L. Emerson, Orange
- 70 Acute Perforating Gastric and Duodenal Ulcer (continued)
E. Elliot New York
- 71 Gastric Ulcer D. A. Currie Englewood
- 72 *Prevention of Mental Disease I. C. Horsford, Morris Plains

72 Mental Disease.—Horsford says that for the prevention of mental disease, as close approach as possible must be had to natural conditions of environment, having due regard to protection from harmful influences. Education in personal and public hygiene is important. To modify heredity, the marriage problem requires consideration. Legal prohibition of marriage to those who have suffered from idiopathic epilepsy or insanity would not be too drastic. A family history of nervous instability, especially chronic alcoholism, suggests a possible transmission of degeneracy. The medical practitioner must do his duty in counsel regarding marriage. Too much forcing in education is doing harm. Masturbation, common in youth while overestimated as a source of danger, if persisted in, suggests mental inferiority. Repeated suggestion is necessary to effect any good. He discusses the dietetic poisons, syphilis, prostitution, the puerperal insanities, etc. He particularly points out the importance of continued observation in the case of those who have recovered from the attack.

Old Dominion Journal of Medicine and Surgery, Richmond November

- 73 *Typhoid Fever in the South E. C. Levy and A. W. Freeman, Richmond
- 74 *Epithelioma of the Lip E. S. Judd Rochester, Minn.
- 75 Leses of Adrenalin Chlorid C. O. Abernethy Raleigh, N. C.
- 76 *Bladder Wounds in Hernia Operations W. B. De Garmo, New York
- 77 *Rational Treatment of Indigestion D. Vanderhoof Richmond
- 78 *So-called Gastric Neuroses T. A. Williams, Washington, D. C.

73 Abstracted in THE JOURNAL, Sept. 12, 1908 p. 940

74 Epithelioma of the Lip.—Judd says that cancer of the lip no matter whether it begins as a wart, ulcer, excoriation, tubercle or leukoplakia can be diagnosed positively within a few weeks, during which time the epithelial cells have changed but little from the normal; the glands have not become involved and the growth is comparatively benign. The removal by paste or caustics though now considered an act of malpractice in all other types of cancer, is still employed to a considerable extent in cancer of the lip, and with the exception of the deformity, the results are as good as those obtained by any one who simply snips out the growth. The

disease does not often manifest itself in the glands for many months and sometimes for several years after it starts in the lip and the patient is apt to consider the lump in the neck a new disease instead of an extension of the former trouble. The same feeling should exist regarding the removal of submaxillary and submental glands in cancer of the lip as animates the surgeon in removing cancer of the breast. Judd discusses the diagnosis, growth, and extension of the conditions, and summarizes these results in fifteen cases of cancer of the lip operated on at St. Mary's Hospital, Rochester, Minn., which testify to the superior results obtained by the complete cleaning operation, the technic of which he describes.

76-77 Abstracted in THE JOURNAL, Nov. 14, 1908, pp. 1722, 1723

78 Gastric Neuroses.—Williams refers to Pavlov's experiments, which, he says, form the best basis for the profession to train itself in the true import of the procedures of psychotherapy, so as to be able to explain them to the laity in these days of mental healing cults. While the influence of sudden grief or terror on digestion is well known, it is not realized that the lesser psychic trauma can by long continuance produce an effect equally pernicious and of longer duration. In cases in which the patient's failure to digest is caused in reality by the idea that he can not do so, treatment should be directed to the removal of the causal idea. In such cases, the gastric secretion having been diminished by disuse aided by general bodily feebleness, complete rest in bed is necessary to confine the energy of the organism to the anabolism required and it must be accompanied by abstraction of the patient from as many external stimuli as possible. Until the profession as a whole understands the mechanism of the false gastropathies, we shall continue to see cases of so-called gastric neuroses, and they will continue to find their salvation after vain medical consultation, at the hands of various faith and mental healing cults.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

January

- 79 *Present Status of the Proprietary Medicine Question P. Marvel Atlantic City, N. J.
- 80 *What Should be our Attitude Toward Proprietary Medicines? H. O. Reik, Baltimore

79 The Proprietary Medicine Question.—Marvel says that one of the greatest problems confronting the American Medical Association at the time of reorganization was the proprietary or "trade mark" medicine question. Physicians have always been divided into two classes: those associating themselves to exalt their profession and better the people's condition, and those considering mainly self interest. On the latter class rests largely the responsibility for the proprietary medicine difficulty. He asks how any member of a medical society can justify the prescription, endorsement or use of such remedies. The two besetting sins of the physician are credulity and indifference. The first renders him an easy mark for every charlatan; the second is largely the result of the deadening routine of an exacting practice. Both these faults lay him open to the wiles of the "patent medicine" road agent. Further, the lack of teaching of the proper application of drugs by medical colleges is partially responsible. Marvel discusses the fostering influence of the patent office and postoffice in assisting the trust, and commends those states that are attending to this matter by legislation. He urges the pharmacists not to specially introduce, barter, or try to persuade his customers to purchase nostrums. He deplors the lack of conscientiousness of the majority of medical journals in accepting advertisements of these frauds, in consequence of the financial advantage arising from them. He particularly condemns the part played by the lay and religious press in foisting such remedies on the public, but is glad to note an increasing appreciation on the part of the religious press of its responsibility in this matter.

80 Id.—Reik refers to the crusade conducted by Adams and Bok in reference to the nostrum trade, and to the awakening of physicians to the hold attained on it by the kindred proprietary medicine fraud. He describes the formation of

the Council on Pharmacy and Chemistry and quotes its regulations in regard to the proprietary remedies, and says that no reasonably fair-minded person can find fault with these rules. The better class of manufacturers promptly recognized the right of the profession to the knowledge it asks for. The Council has acted with the greatest judgment. No preparation has been rejected without good and sufficient cause or without an opportunity for the manufacturer to defend or reform his product, but accepted preparations are not thereby endorsed, approved, or recommended by the Council for use. It is merely testified to that they have complied with its rules. Among the faults found by the Council was a great deal of intentional deception in the statements of the manufacturers, numerous instances of which Reik relates. For himself, he has formulated the following rules: 1. To confine his prescribing where possible, to the U. S. P. and the N. F. 2. Not to prescribe any proprietary preparation that the Council has tested and rejected; to retain the privilege of prescribing any preparation listed in "New and Nonofficial Remedies"; and to insist on all new preparations being submitted to the Council before being offered to the profession. 3. To meet the detail man with an inquiry whether the remedy he is offering has been accepted by the Council, and if not, by stating that it is waste of time to discuss it until it has. 4. Without boycotting otherwise decent medical journals that accept for advertisement unauthorized products, to point out to editors that it is poor policy to keep on antagonizing the profession. 5. Carefully to revise any testimonial he might ever feel inclined to write and then—to destroy it.

Yale Medical Journal, New Haven, Conn.

December

- 81 Opsonins and Their Relation to Bacterial Vaccine Therapy. W. B. Steiner, Hartford, Conn.
- 82 Bacterial Vaccines and their Opsonic Index. C. T. Beach, Hartford.
- 83 Bacterial Vaccines and Vaccine Therapy. A. H. Griswold, Hartford, Conn.
- 84 *Prognosis in the Suture of Nerves. E. A. Wells, Hartford, Conn.
- 85 *Etiology and Treatment of Puerperal Infection. W. L. Barber, Waterbury.

84 and 85. Abstracted in Society Proceedings, THE JOURNAL, July 25, 1908, p. 338.

Northwestern Lancet, Minneapolis

January 1

- 86 Congenital Idiopathic Dilatation of the Colon: Hirschsprung's Disease. E. S. Judd, Rochester, Minn.
- 87 Modern Operation for Cure of Inguinal Hernia. E. W. Andrews, Chicago.
- 88 Postoperative Complications. A. E. Wilcox, Minneapolis.
- 89 Mortality in One Thousand Operations for Goiter. C. H. Mayo, Rochester, Minn.

Archives of Ophthalmology, New York

November

- 90 Bilateral Glioma of the Retina with Numerous Distant Metastases. J. P. Gardiner, Chicago.
- 91 *Treatment of Immature Cataract. H. Smith, Jullunder, Punjab, India.
- 92 Symblepharon, Corneal Opacities, etc., of Prenatal Origin, in a Woman with Hereditary Cataracts at an Early Stage. B. Chance, Philadelphia.
- 93 Conjunctivitis Associated with *Bacillus pyocyaneus* Found in Normal Conjunctival Sac. B. Pusey, Chicago.
- 94 Practical Value of the Sphygmomanometer to the Ophthalmologist. J. Dunn, Richmond, Va.

91. Published in *Indian Medical Gazette*, October, 1908, and abstracted in THE JOURNAL, Dec. 19, 1908, p. 2191.

West Virginia Medical Journal, Wheeling

December

- 95 Influenza. W. W. Tompkins, Charleston.
- 96 Pathology, Symptomatology, Diagnosis and Treatment of Influenza. J. W. Moore, Charleston.
- 97 Erythromelalgia. W. Neill, Charleston.
- 98 Functions of the State Association Journal. S. L. Jepson, Wheeling.
- 99 Louis Pasteur—His Work. C. S. Bowers, Wheeling.
- 100 The Pharmacist as a Professional Man, and His Relation to the Physician. E. B. Romig, Keyser.

Alban. Medical Annals

December

- 101 Recent Advances in Obstetrics. J. P. Boyd, Albany.
- 102 Medical ic. S. W. S. Toms, Nyack, N. Y.
- 103 Internal C. Gordinier, Troy, N. Y.
- 104 Acute L. Archambault and W. G. MacDonald, Albany.

Memphis Medical Monthly

December

- 105 Responsibilities of Surgery. E. J. Johnson, Yazoo City, Miss.
- 106 Pathologic Nasopharynx. J. T. Allen, Brownsville, Tenn.
- 107 Bier's Obstructive Hyperemic Treatment with Elastic Bandage in Acute Infections of Extremities. W. T. Black, Memphis.
- 108 Treatment of Eye Diseases by the General Practitioner. G. H. Woods, Greenville, Miss.
- 109 Are We Advancing? H. C. Buck, Friars Point, Miss.
- 110 Psychotherapy. M. G. Thompson, Hot Springs, Ark.

Dominion Medical Monthly, Toronto

December

- 111 Acute Hematogenous Infection of One Kidney in Persons Apparently Well. T. B. Richardson, Toronto.

Ophthalmic Record, Chicago

November

- 112 Limitations of Ophthalmic Practice. D. T. Vall, Cincinnati.
- 113 Teaching the Subject of Ocular Refraction. E. Jackson, Denver.
- 114 Teaching of Ocular Pathology to Graduates and Undergraduates in Medicine. C. A. Wood, Chicago.
- 115 Etiology of Chorioiditis. J. B. Lawford, London, Eng.
- 116 A New Eye Dressing. J. L. Hiers, Savannah, Ga.
- 117 Sympathetic Ophthalmia Occurring Thirty-One Days After the Removal of the Injured Eye. G. H. Mathewson, Montreal.
- 118 Pseudo-Optic Neuritis. T. B. Schneideman, Philadelphia.
- 119 Postoperative Sympathetic Ophthalmitis. D. M. Campbell, Detroit.
- 120 Sympathetic Ophthalmia Following Mules' Operation. C. H. Brodus, Peoria, Ill.
- 121 Sympathetic Ophthalmia After Evisceration and Mules' Operation. H. Gifford, Omaha, Neb.
- 122 Transferred Ophthalmitis Following Insertion of a Gold Ball into the Scleral Cavity—Enucleation—Recovery with Useful Vision. C. A. Oliver, Philadelphia.
- 123 Estimation of Errors of Refraction by Astigmatic Charts. E. K. Ellis, Boston.

Detroit Medical Journal

November

- 124 Disinfectants in Treatment of Surgical Wounds. F. T. McCormick, Detroit.

Mississippi Medical Monthly, Vicksburg

December

- 125 Typhoid in Children. L. E. Pierce, Stovall, Miss.
- 126 The Physician as a Business Man. E. F. Arnold, Bellefontaine.
- 127 Management of Syphilis in the Negro. F. M. Brougher, Belen.
- 128 Abnormal Presentations. J. T. Butler, Brookhaven.

American Journal of Urology, New York

December

- 129 Pyuria: Its Causes, and the Methods of Determining Them. A. L. Wolbarst, New York.
- 130 Endoscopic Consideration of New Growths of the Urethra. E. G. Mark, Kansas City, Mo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

December 26

- 1 Treatment of Fractures of the Base of the Skull. R. MacLaren.
- 2 Asthma. A. G. Auld.
- 3 *Pyrexia During the Puerperium. L. B. Cane.
- 4 *Malformations of the Hind End of the Body (continued). A. Keith.

3. Pyrexia During the Puerperium.—Cane's inquiry is based on the stringent condition, that every case in which the temperature goes above 100, with or without a rise of pulse rate, is reckoned as morbid. His paper is based on an examination of 1,196 cases of childbirth, attended during 12 consecutive months by the out-door midwifery department of St. Bartholomew's Hospital, with special attention to the following points:

1. The number and percentage of cases of pyrexia with the relative frequency in multiparæ and primiparæ.
 2. The usual time after delivery at which the normal limit is passed.
 3. The duration of pyrexia from all causes, and of those cases clearly due to sapremia.
 4. The range of temperature in multiparæ and primiparæ respectively.
 5. The more common causes and their relative frequency.
- The results are tabulated.

4. The Hind End of the Body.—Keith discusses in this article the following four conditions: 1, Ectopia vesicæ in the male; 2, ectopia vesicæ in the female; 3, ectopia vesicæ combined with fistulous condition of the intestine; 4, epispadias.

Lancet, London

December 26

- 5 *Arthritis Deformans. A. H. Tubby.
6 *Clinical and Postmortem Observations on the Status Lymphaticus. R. E. Humphrey.
7 Compound, Comminuted and Depressed Fracture of Skull with Laceration of Brain and Rupture of Middle Meningeal Artery. R. Hill.
8 Extrauterine Pregnancy: Operation During the Sixth Month. H. J. Paterson.

5. Arthritis Deformans.—Tubby discusses Still's disease, hypertrophic arthritis deformans, and atrophic arthritis (rheumatoid arthritis). He strongly advocates in the last form the fermented milk diet—Metchnikoff's milk or the bacillus acidii lactici milk. Constipation must be treated. As to medicaments, guaiacol carbonate in the acute stages has appeared to him of some use, probably because it limits intestinal putrefaction; and in the chronic stages, in which the fine crepitation is replaced by coarse crackling, he finds that arsenic and iron, or Donovan's solution, are of service as tonics. Many patients do well on cod-liver oil, but will not tolerate potassium iodid. The joint should never be fixed; support is called for. Tender and painful joints demand compression by layers of cotton and an elastic bandage. The results of cataphoresis have been encouraging. Physical methods—radiant heat, vibration and hot-air baths—have a definite place in treatment. He finally discusses surgical measures, the objects of which are: 1. To rid an articulation of the products of inflammation, either toxins or bacteria; and in this connection it is interesting to note the great improvement that takes place in the general condition of the joints in a case of rheumatoid arthritis after the draining of even one joint; it appears as if the patient had been relieved of some of his toxic products. 2. To remove hypertrophied villi and osteophytes, which interfere with the functions of the joint and produce erosion of the articular surfaces. 3. To correct deformity.

6. Status Lymphaticus.—Humphrey describes 5 cases of death under anesthetics, with autopsy results and their relation to the anesthetics. He speaks in favor of ethyl chlorid, as holding an intermediate position between nitrous oxid and chloroform or ether, and discusses several causes which have tended to throw ethyl chlorid somewhat into disrepute. He holds that deaths under any anesthetic properly administered are, apart from the status lymphaticus, of extreme rarity, and that there is no valid evidence to show that either chloroform or ethyl chlorid is worse than any other anesthetic when dealing with subjects of status lymphaticus. If one is cognizant of the disease the beginning of the operation should be postponed until the patient is in the third stage of anesthesia, for in these cases shock is probably a more important factor than the influence of a narcotic.

Medical Press and Circular, London

December 23

- 9 Physiology of the Child. G. E. Pritchard.
10 Corneal Ulcers. H. C. Mooney.
11 Operative Treatment of Strabismus. G. T. B. James.
12 Pericardial Effusion. S. West.

Clinical Journal, London

December 23

- 13 Large White Kidney. W. P. Herringham.
14 Tumors of Breast. J. Bland-Sutton.
15 *Causes of Death During Anesthesia. R. J. Probyn-Williams.

15. Anesthesia.—Probyn-Williams discusses some causes of death during anesthesia, particularly the status lymphaticus. He concludes that when death occurs under an anesthetic it is not by any means always due to the anesthetic. When it does occur under such circumstances a careful postmortem should always be made; and finally, the determination of the share of the anesthetic may be so extremely difficult that the help of a coroner's jury becomes ludicrous, and some other method of conducting an inquiry should be found.

Practitioner, London

December

- 16 Two Cases of Multiple Congenital Deformities. Sir G. T. Beaton.
17 *Pathogenesis of Arteriosclerosis. E. H. Colbeck.
18 Evolution of the Modern Operation of Hysterectomy. E. S. Bishop.

- 19 *Radical Cure of Complete Procidentia of the Uterus, with an Account of a New Method of Operation for this Condition. L. McGavin.
20 Forty-six Consecutive Operations for Cholecystitis. H. M. Rigby.
21 Cholelithiasis: Its Early Recognition and Early Surgical Treatment. B. G. A. Moynihan.
22 *Industrial Diseases. A. Scott.
23 Theory and Employment of Hür's Method of Treatment by Passive Congestion in Rheumatoid Arthritis, Tubercle Sepsis and Various Other Conditions (concluded). A. W. Wakelield.
24 Review of Dental Surgery. J. G. Turner.
25 *"Tree Branch" Striations Occasionally Seen in Skiagrams of Tuberculous Lungs. C. Willett-Cunnington.
26 Diagnosis of a Fracture. R. P. Crosbie.

17. Arteriosclerosis.—Colbeck attempted to demonstrate (*Lancet*, 1901) that all forms of fibrous hyperplasia originate in increased nutrition, consequent on the partial or complete loss of control that is normally exercised over the nutritional supplies to the fibrous tissue by the more highly specialized cells with which it is associated. He holds that arteriosclerosis, in common with other forms of fibrous hyperplasia, owns a similar origin. The first step is an increase in the functional activity of the musculature of the arteries and arterioles whereby their usual tonus is augmented. Long continued or recurrent hypertonus, whether of heart or vessels, leads, under favorable nutritive conditions, to muscular hypertrophy. But a time comes when the muscle fails to respond to heightened functional activity and increased nutritive supply (hypertrophy), owing to inherent limitations for growth. This implies protoplasmic insufficiency, and ultimately degeneration, whereon the associated fibrous tissue, under the stimulus of the hyperemia, proliferates. The process would go on indefinitely were it not that the contraction of the fibrous tissue cuts off its own blood supply.

19. Procidentia of the Uterus.—McGavin discusses hysterectomy, ventrosuspension and ventrofixation. Hysterectomy he objects to for various reasons—it is a mutilating operation; it is undoubtedly severe; it frequently does not result in the cure of the whole trouble; interference is sometimes required in women in the child-bearing period; and it not unfrequently leads to a confirmed neurosis. Ventrofixation and ventrosuspension, as at present performed, are prone to fail, owing to the tendency of the fundal ligament to stretch. He thinks it reasonable to suppose that, if the uterus could be brought to such a height as would cause traction to be exerted on the vaginal walls, and so on the contiguous walls of the bladder and rectum, and securely fixed there, not only would the procidentia be permanently cured, but to a very great extent the coexistent cystocele and rectocele would be relieved, if not actually cured also. He then describes an operation based on the following essentials for success: First, the formation of some ligament which should be absolutely unstretchable; second, that this ligament should be intimately incorporated with the uterus itself, on the one hand, and with the abdominal wall on the other; third, that the period of convalescence should be sufficient for the firm consolidation of this ligament; and lastly, that the operation for its manufacture should be one of no great severity.

22. Industrial Diseases.—Scott discusses various intoxications, dust inhalation, gases and fumes, micro-organisms, glanders and anthrax, in relation to industrial diseases.

25. "Tree Branch" Striations.—Willett-Cunnington discusses the peculiar marking, linear in shape, starting from the situation of the lung root and extending outward in the direction of both the apex and the base of the lung, which are found from time to time in x-ray photographs of the chest. He suggests that the linear shadows are cast by lymphatics crammed with products of tuberculous disease—caseated material, in fact—in process of being carried from the more distant parts of the lung toward the lymphatic glands, there to be consumed. A certain amount is left behind, and this the lung tissue is able to cope with, converting it into, or surrounding it with, fibrous tissue. This would explain the ultimate dissolution of the tree-like branches into the discrete nodules, as already described. The fate of the patient would depend on the powers of the glands, which, like furnaces consuming deleterious matter, may become choked in the task, or may successfully perform the work thrust on them.

Journal of Obstetrics and Gynecology of British Empire,
London

December

- 27 *Malignant Disease of the Uterus. Digest of 265 Cases Treated in the New Hospital for Women. L. G. Anderson and K. Platt.
- 28 Cystic Interstitial Uterine Fibroid Apparently Papillomatous. A. Doran.
- 29 Cesarean Section in a Case of Twins with Placenta Prævia. R. Jardine.
- 30 Status Epilepticus in a Parturient Woman. R. Jardine.
- 31 Rupture of an Incarcerated Retroverted Gravid Uterus. Recovery. J. Campbell.
- 32 *Physiologic Anesthesia During Labor. R. G. McKerron.
- 33 Fatal Hemorrhage from the Vagina in a New-Born Child. R. G. McKerron.

27. Malignant Disease of Uterus.—Anderson and Platt analyze 265 cases of various forms of malignant disease of the uterus, but find themselves unable to give definite conclusions in regard to the symptomatology of the disease. They state, however, that in the great majority of cases, symptoms were absent until late in the disease, and in all the cases of cancer of the cervix pain was the last symptom of which complaint was made.

32. Physiologic Anesthesia During Labor.—McKerron describes a woman's fourth confinement, in which it was decided to give chloroform early, in consequence of the extreme suffering. However, before the anesthetic could be begun, an unusually strong pain came on; at its height the patient gave a loud scream and at once became unconscious. Her breathing was heavy and almost stertorous; her face somewhat flushed; the eyes fixed in a vacant stare; the pupils dilated but equal, the conjunctival reflex completely abolished. She was quite insensible to pain, but in the limbs reflex movements could be elicited. There was no muscular twitching at any time, merely general and complete relaxation. The condition was alarming, and suggested at first the possibility of cerebral hemorrhage, but the fact that there was no paralysis and that the pulse retained its normal frequency and character, was reassuring. The patient remained in this unconscious condition till the birth of the child fifteen minutes afterward. Powerful uterine contractions, accompanied by strong down-bearing efforts, continued to recur every three minutes, but she was as unconscious of them as if under the full influence of an anesthetic. The coma remained unaltered and the conjunctival reflex absent till delivery was completed. Immediately the child was expelled she suddenly woke up, consciousness being regained almost as abruptly as it had been lost. There was no trace of mental confusion, but she remembered nothing, had felt no pain, and was surprised to learn that the child was born. Her recovery after labor was in every way normal.

Journal of Tropical Medicine and Hygiene

December 15

- 34 *Influence of Tropical Climates on the Functions of the Female Generative Organs in Health and Disease. A. Routh.
- 35 The Hemogregarines of Snakes (continued). L. W. Sambon.

34. Female Generative Functions in the Tropics.—Routh discusses the effect of residence and work in the tropics on the European women as regards menstruation, conception, pregnancy, parturition and the puerperium. Dysmenorrhea at the onset of menstruation is not more common in the tropics than elsewhere. Disorders are mainly in the direction of menorrhagia. In cases of neurasthenia, however, menstrual disorder occurs in almost every case; dysmenorrhea, menorrhagia, leucorrhœa, backache, and bearing down become prominent features. Women suffering from dysmenorrhea are made worse by going to the tropics, and those habitually suffering from menorrhagia at home are certain to lose more blood in the tropics. Menorrhagia without organic cause, secondary to portal congestion, is a common result of residence in the tropics. The menopause is a very trying time, causing depression and incapacity for physical or mental work. Conception is not less likely to occur in tropical countries. Abortions are more common, especially those consequent on intra-uterine death of the fetus from acute malaria, dysentery and toxemia. Pregnancy does not appear to render women im-

mune against tropical diseases, but there appears to be a predisposition to malaria, dysentery, sprue, and beriberi in the later months of pregnancy. If acute intermittent fever supervenes during pregnancy the fetus may be definitely attacked. Those who have attended women in labor while suffering from malaria and its consequences, agree that labor is lingering and tedious, and that the use of forceps is generally necessary. The child is reared with difficulty and uterine involution is imperfect. Cholera causes abortion in 80 per cent. of those attacked. In highly malarious districts, such as tropical Africa, women who become pregnant should return home or change their environment for their confinement, especially if out of reach of skilled medical aid. In many cases, however, confinements have been found easier in India than in England. Lactation is not so easily performed by Europeans in the tropics and is more exhausting.

Australasian Medical Gazette, Sydney

November

- 37 Surgical Tuberculosis. B. Poulton.
- 38 Prospects of the British Medical Profession and Suggestions for Improvements. J. Booth-Clarkson.
- 39 Paranoia with Some Cases. Dr. Montgomery.
- 40 Acute Primary Pneumonia. J. A. Cameron.
- 41 Pyelitis and Toxemia of Pregnancy with Jaundice. T. G. Wilson.
- 42 An Unusual Malformation of the Pelvic Organs in the Female. H. G. T. Young.

Archives Générales de Chirurgie, Paris

November 25, II, No. 11, pp. 445-551

- 43 *Remote Results of Operative Treatment of Imperforate Anus or Rectum. (Résultats éloignés des interventions pour imperforations ano-rectales.) E. Hardouin.
- 44 Tuberculous Affection of Wrist. (Cas de maladie de Maderlung.) F. Marsan.
- 45 Extensive Inguinal Hernia Treated by Radical Operation with Section of the Spermatic Cord or by Restoring the Testicle to the Pelvis. (Volumineuses hernies inguinales traitées par les sections du cordon ou par la cryptorchidie pelvienne artificielle.) Mauchaire.

43. Ultimate Results of Operation for Imperforate Anus or Rectum.—Hardouin adds to the cases discovered in the literature several unpublished reports and some from his own experience, his compilation thus including 223 cases of ano-rectal imperforation. Six different technics were applied in as many groups of cases. Fully 55.2 per cent. of the patients succumbed during the first week after the operation; 44.4 per cent. during the first month; 22.8 per cent. were lost sight of during the first year, while the intervention proved successful in 13.55 per cent.—the results known for one year and over, and in 5.82 per cent. for twenty years. The results with the Littré method were much more satisfactory than with the others, but even at the best the functional results of operative treatment are disappointing. Out of the total 223 patients only 16 lived to puberty and only 13 into adult life. Stricture is the most formidable complication, but incontinence is frequent and prolapse is occasionally observed. In one case the kidney protruded from the wound. The Littré method is merely to make an artificial anus in the left iliac region.

Bulletin de l'Académie de Médecine, Paris

December 8, LXXII, No. 40, pp. 467-525

- 46 *Dog Tapeworm in Man. (Nouveau cas de Dipylidium caninum.) M. R. Blanchard, C. Leroux and R. Labbé.

46. Dog Tapeworm in Man.—Blanchard reports another case, but adds that the parasite in this instance was derived from a cat. In considering this and similar cases that have been reported, the Academy adopted a resolution urging instruction of the public in the dangers from dogs and cats and in the "means to render these useful domestic animals harmless." The prophylactic measures advocated by Blanchard are to rid the dogs and cats of their intestinal and external parasites and keep their fur clean with insecticide baths and scrub baths. Above all, as a general thing, to refrain from close contact with domestic animals liable to harbor various parasites that may be communicated to man, especially the echinococcus.

Presse Médicale, Paris

December 12, XVI, No. 100, pp. 801-808

- 48 Therapeutic Applications of Radium. L. Wickham.
- 49 Electricity in Medicine. (L'électricité électrique en médecine et la fulguration.) M. A. Zimmern.
- 50 Progressive Facial Hemiatrophy. H. Claude and A. Sézary.

December 10, No. 101, pp. 809-816

- 51 Pathogenesis of Gastric Ulcer. (Résistance de l'estomac à l'auto-digestion.) A. Frouin.
52 Tropical Hypochlohydria. E. Marchoux.

Revue de Chirurgie, Paris

December 10, XXVIII, No. 12, pp. 673-940

- 53 Transplantation of Members. A. Carrel (New York).
54 Operative Indications in Gallstone Affections. (Indications opératoires dans la lithiase biliaire.) E. Quénu.
55 Operations for Rebellious Valgus Flatfoot. (Traitement sanglant du pied plat valgus invétéré.) A. Caucholx.
56 Multiple Perforations of Intestine from Gunshot Wounds (Perforations multiples de l'intestin dans les plaies de l'abdomen par armes à feu.) P. Sourdat.
57 Hour-Glass Stomach and Its Surgical Treatment. (L'estomac biloculaire.) Veyrassat.
58 Case of Tuberculous Elephantiasis of Scrotum. C. Dujarier and G. Laroche.

55. Treatment of Valgus Flatfoot.—Caucholx reports four cases of inveterate flatfoot treated by operative measures with excellent results. In two of the patients the flatfoot was corrected by shortening the two tendons of the tibialis posticus, resecting about 2 cm. back of the internal malleolus. The others were treated by a trapezoidal tarsectomy supplemented by shortening the tendons of the tibialis posticus in one case. The article is accompanied by twenty illustrations.

56. Multiple Gunshot Wounds of the Intestines.—Sourdat has been able to collect from the literature seventy cases in which a gunshot wound of the abdomen caused from four to nineteen perforations of the intestines. In thirty cases the mesentery was injured also. He gives the details of the entire list, all reported during the last eighteen years. In every case of bullet wound of the abdomen it is safe to assume multiple perforations unless there is positive evidence to the contrary. No matter how numerous the perforations, they should be sought along the entire length of the intestine, with as little evisceration as possible, draining wherever there is any accumulation of matters escaping from the intestine. In the total seventy cases, 70 per cent. of the patients recovered, and in six of the fatal cases the abdominal injury was not responsible for the outcome, consequently the mortality was only 21 per cent.

57. Hour-glass Stomach.—Veyrassat gives an illustrated description of the various methods of remedying this condition, and summarizes the details of the cases in each group. The surgeon has to be guided in his choice of a technic by the movability of the organ. When it is fastened down by adhesions, gastroenterostomy seems to be the only resort, and the results are usually satisfactory.

Semaine Médicale, Paris

December 16, XXVIII, No. 51, pp. 601-612

- 59 Treatment of Varices by Intravenous Injection of Iodin. B. Schiassi.

59. Injection of Iodin in Treatment of Varices of the Leg.—Schiassi has revived the principle of inducing complete obliteration of the superficial veins in the leg by injecting an irritating fluid. He makes a small incision above the condyle of the femur and isolates the saphenous vein which he ligates at the upper end of the incision and clamps just below, cutting it between the clamp and the ligature. He then injects the fluid into the peripheral stump, through a small glass tube with olive tip. He uses iodine as the least toxic and most irritating drug for the purpose, preferring a mixture of 1 part iodine and 1.6 parts potassium iodide to 100 parts of distilled water. The injection is made from above toward the foot, very slowly and cautiously, until he has thus injected from 30 to 50 c.c. of the solution. He then ligates the vein below, cuts off the short end above, and sutures the incision. The vein becomes obliterated by a slow endothelial reaction, which renders scarcely possible any detachment of an embolus. He has never had any mishaps with this technic, local or general, at the time or later. The injected iodine spreads throughout the superficial veins down to the ankle, and in a week most of the veins are found to be hard cords, completely and definitely obliterated, with the subsequent cure of the varicose disturbances. He has recently re-examined the 60 patients on whom he has thus operated, the ultimate findings confirming his highest anticipations. He calls it the

"minimal measure method," *minimo mezzo*, as the operation is so insignificant in proportion to the results attained. The article is illustrated.

Archiv für Verdauungs-Krankheiten, Berlin

December, XII, No. 6, pp. 629-738

- 60 Influence of Certain Drugs on Digestion of Pepsin. (Einfluss einiger Arzneimittel auf die Pepsinverdauung.) M. Ascher.
61 The Mathieu Method of Determining Exact Quantity of Stomach Contents. (Bestimmung des Mageninhalts nach Mathieu-Rémond.) A. Schille.
62 Duodenal Ulcer. (Fall von Ulcus duodeni.) M. Pewsner.
63 Sufficiency and Insufficiency of the Anastomosis After Gastroenterostomy. (Ueber die nach Gastroenterostomie entstandene Anastomose und das radiologische Verhalten.) S. Jonas.
64 tion and Stomach Affections
Diagnosis and Treatment.
der Menstruation und der
es.

60. Influence of Drugs on Pepsin Digestion.—Ascher has experimented with various drugs in therapeutic dosage and has found that the digestion in the stomach is affected by them to a hitherto unrealized extent. Iron is particularly noxious in this respect. He found that bitters, quinin and condurango, while they stimulated secretion, yet rendered the secretion of no avail on account of their ferment-destroying property.

62. Duodenal Ulcer.—Pewsner's patient was a man of 53, who complained of nausea, eructations and vomiting. Chronic alcoholic gastritis with digestive hypersecretion, tending to become continuous, was evidently one of the causal factors responsible for the development of the duodenal ulcer in this case. The stomach must have been protected by the mucus secreted from the inflamed stomach wall. The case shows that the motor function of the stomach may persist unimpaired, notwithstanding the existence of a duodenal ulcer. Treatment should be the same as for ulcer of the stomach, with active intervention if this fails.

63. Roentgen Research on the Stomach After Gastroenterostomy.—Jonas writes from Holzknecht's Roentgen laboratory at Vienna to describe the findings after gastroenterostomy, with and without disturbances later. The latter are always due to accumulation and retention of stomach content in the pouch left by the gastroenterostomy. If the intestine has been implanted high up in the stomach wall the formation of this pouch must be prevented by wearing a bandage when the patient gets up after the operation. Another important measure is for the patient to lie down, after eating, for a time, assuming a position to favor the emptying of the stomach. Massage answers the double purpose of strengthening the muscles of the abdominal wall and favoring the evacuation of the stomach.

64. The Reciprocal Relations of Menstruation and Stomach Affections.—Plönies noted an exacerbation of the symptoms, with the onset of the menstrual period in all but 17 per cent. of 450 female patients with various stomach affections. He thinks that the sympathetic and the vagus systems become hyperexcitable during this period, and that the increased vulnerability of the intestinal tract during the menstrual period imposes the necessity for regulation of the diet, especially to ward off relapses. He adds that chronic affections of the digestive tract in children up to puberty are liable to interfere with the normal development of the sexual organs unless the digestive troubles are recognized and combated in time. Menorrhagia without discoverable cause may sometimes be traced to the parietic influence of toxins from a stomach affection, plus the effects of anemia and insufficient nourishment, with chronic metritis as the result. On account of the injurious influence of the latter in turn on the stomach affection and whole system, energetic local treatment is imperative.

Berliner klinische Wochenschrift

December 7, XLV, No. 49, pp. 2177-2212

- 65 Laryngophtosis and Allied Ptoses. H. Quincke.
66 Roentgen-Ray Investigation of Stomach Affections. (Magen-erkrankungen im Röntgenbilde.) V. Schmelde.
67 The Antitryptic Ferment Test. (Zur Brieger'schen Reaktion.) E. Herzfeld.
68 A Contralateral Plantar Reflex. H. Steinberg.
69 Opsonins and Their Significance. G. Wolfsohn.
70 Treatment of Morphin Addiction. (Morphinismus.) F. H. Mueller.
71 Treatment of Severe Ludwig's Angina. A. Schlesinger.

67. **Cachexia Reaction.**—Herzfeld has found that Brieger's test of the antiproteolytic power of the serum indicates cachexia, but not necessarily cancer.

68. **Contralateral Plantar Reflex.**—Steinberg has noticed that the Babinski sign seems to be paralleled by plantar flexion of the big toe, when the sole on the sound side is stroked. He gives six examples to show that this reflex is more sensitive than the Babinski sign, and that it indicates some affection of the cerebral portion of the pyramidal tract, while the Babinski indicates both cerebral and spinal involvement.

70. **Morphin Addiction.**—Mueller declares that nearly every case of morphin addiction is traceable to medical advice in some chronic affection, and he urges that the patient should never be allowed to know the nature of the drug with which pain is alleviated. Morphin should be used only as a last resort, and given internally. If the syringe has to be used, he advises injecting such a dose that a single one suffices, and never giving the syringe to the patient. He says that if these rules for prophylaxis of morphin addiction were printed and given to young physicians on graduation, morphin would have far fewer victims. In treatment, he says that no success need be anticipated unless the patient goes to some institution; he does not advise forcible measures. Even if a complete cure is not realized, a course of treatment will reduce the amount required within comparatively harmless bounds. His main argument, however, is that a person addicted to morphin should be regarded as actually sick, not merely as lacking in will power.

Deutsche medizinische Wochenschrift, Berlin

December 10, XXXIV, No. 50, pp. 2153-2200

- 72 *Treatment of Neurasthenia. E. Müller.
- 73 Multiple Sclerosis After Psychic Shock. G. W. Wallbaum.
- 74 Origin of Urobilin. (Zur Frage der Urobilinentstehung.) W. Hildebrandt.
- 75 *Suction in Correction of Deformities of the Foot. (Redressement von Fussdeformitäten im Saugapparat.) J. Fränkel.
- 76 Extraction of Foreign Bodies from the Esophagus. (Entfernung von Fremdkörpern aus der Speiseröhre.) W. Danjelsen.
- 77 Traumatic Hernia. Doepner.
- 78 Gloves and Substitutes for Gloves in Surgery. (Handschuhe und Handschuhersatz.) G. Becker.
- 79 Arsacetin in Syphilis. G. Heymann.
- 80 Preventive Treatment of Infections with Lecithin. (Verwertbarkeit des Lecithins zur Toxingewinnung.) M. Wassermann and A. Seitz.

72. **Treatment of Neurasthenia.**—Müller remarks that neurasthenia is the fashion just now, but that it is by no means a new affection. It is diagnosed much more frequently than it really exists. As a rule, it is based on some congenital morbid tendency in the nervous system. As the morbid mental attitude is the main factor, treatment must be mainly by suggestion, and this includes minute examination and the whole arsenal of therapy, as he reviews in detail. The young require not only physical toughening, but toughening of the will, and wise choice of an occupation as they grow up. Vanity and material interests should be regarded less than natural talent and tastes in selecting the occupation for those predisposed to neurasthenia.

75. **Correction of Deformity of the Foot in Suction Apparatus.**—Fränkel announces that a correcting apparatus applied after local hyperemia is induced and continued in a comparative vacuum gives favorable results according to the extensive experiences at Bier's clinic. The suction induces venous stasis and softens and loosens up the joints, restoring conditions such as existed during intrauterine life and thus gradually correcting the deformity by reversing the process by which it was acquired. The foot is placed in a box with a glass window in which the vacuum is produced by a water jet pump. The local hyperemia loosens the tissues so that the mechanical correction proceeds without the slightest pain, no anesthetic being required for the correction either for children or adults. He has one box with openings around the side, each with its rubber cuff, which allows half a dozen clubfeet to be treated simultaneously. The spring device for correcting the deformity in the vacuum is illustrated as applied to clubfoot and to talipes cavus and equinus. This device allows movement of the muscles and prevents danger of decubitus, while it can be used as a walking appliance with talipes at any age.

Medizinische Klinik, Berlin

November 29, IV, No. 48, pp. 1825-1856

- 81 Wide Distribution of Paratyphoid Bacilli and Their Connection with Meat Poisoning. (Verbreitung der Bakterien der Paratyphus B- und Gaertner-Gruppe und ihre Beziehungen zur gastrointestinalen Form der Fleischvergiftungen.) P. Uhlenhuth and E. Hübener.
 - 82 Symptoms in Throat and Larynx with Affections of Heart and Large Blood Vessels. (Kehlkopf- und Rachensymptome bei den Erkrankungen des Herzens und der grossen Gefässe.) E. Baumgarten.
 - 83 Subjective Cacocsmia. (Subjektive Kakosmie.) E. Kobrak.
 - 84 Egyptian Desert for Patients with Kidney Disease. (Ein Wüstenlager für Nierenkranke.) Stillkrauth.
 - 85 *Local Anesthesia in the Hands of the General Practitioner. (Die Lokalanästhesie in der Hand des praktischen Arztes.) Most.
- December 6, No. 49, pp. 1857-1898
- 86 Recognition and Treatment of Perforation Peritonitis. M. Martens.
 - 87 *Chronic Hydrocephalus and Syphilis. (Hydrocephalus chronicus internus congenitus und Lues.) W. Knoepfelmacher and H. Lehdorff.
 - 88 Skiagraphy from a Distance in Examination of Thorax. (Weit der Teleröntgenographie für die Untersuchung der Brustorgane.) M. Levy-Dorn.
 - 89 Early Treatment of Syphilis. (Frühbehandlung der Syphilis.) A. Lederer.
 - 90 *Limitations of Treatment of Neuralgia by Injections. L. Schlesinger.
 - 91 Indications for Quartz Lamp Treatment. (Indikationen für Kromayers medizinische Quarzlampe.) W. Lüth.

85. **Local Anesthesia in the Hands of the General Practitioner.**—Most gives an illustrated description of the principal techniques which he advocates; ethyl chlorid for superficial and other operations in which a single incision suffices; Schleich's infiltration method for punctures and simple, superficial excisions in regions free from inflammation, and the Hackbruch and Braun method for all other interventions, injecti. 0.5 per cent. cocain solution all around the focus. The last-named method is of course applicable only when it is possible to obtain access to the entire region around. This technic is particularly useful for operations on fingers or toes. He has applied in one case Bier's new technic of intravenous injection of the anesthetic after the blood has been expelled from the part and is kept out by a constricting band, rinsing the anesthetic out of the veins in the part by flushing with salt solution before removing the constriction. This technic proved very satisfactory for resection of a tuberculous wrist in his case. Local anesthesia has been so perfected in late years, he says, that it has now a surprisingly wide field of usefulness, including many interventions until recently regarded as requiring general anesthesia.

87. **Hydrocephalus and Syphilis.**—The complement fixation test was applied in three cases of congenital hydrocephalus with negative findings, but a positive response was obtained in another. This experience speaks against the assumption of syphilis as a frequent cause for hydrocephalus.

90. **Limitations of Treatment of Neuralgia by Injections.**—Schlesinger has been using for some time physiologic salt solution, just below freezing point, for local treatment of neuralgia. The advantages of the chilled solution are the immediate abolition of the pain, which has a most encouraging effect on the patient, freeing him at one stroke from his long torture. Schlesinger warns that acute sciatica in all cases and the chronic form in the majority of cases, are not suited for this injection therapy. They are best treated by rest in bed, quinin in small doses, repeated several times a day, and galvanization, not beginning too early with the latter. The frequent coincidence of sciatica with the uric acid diathesis should not be forgotten. Intraneural injections are too dangerous for nerves with a motor element, like the sciatic. If he has had peroneus paralysis develop after such treatment, as has also been reported from Erb's clinic. Typical sciatica generally has an acute onset, the first symptoms being the pain on pressure of the point where the nerve emerges. The pain soon spreads along the whole nerve, and a second painful pressure point develops at the head of the fibula. At first the skin is hypersensitive, but soon it becomes much less sensitive than normal, and there is early atrophy of the musculature from involvement of the trophic fibres of the nerves. In addition to this true neuritis, he describes another affection which is usually ascribed to sciatica, but in reality differs in many points from it, and especially in the fact that it can be cured

by the injection therapy. It begins gradually with a little sensitiveness in the hip vague drawing sensations which only gradually develop into intense pain. The pain is extremely characteristic; it does not follow the course of a nerve but spreads out over the surface, as far as the crest of the ilium and beyond toward the spine. He calls this the pain of sensitive area. These pain areas may be as large as the palm of one's hand, and the skin is always abnormally sensitive in contrast to its behavior in true sciatica. This hyperesthesia of the skin ranges from slight sensitiveness to lively pain at the slightest contact. This hyperesthesia in the pain areas not only differentiates this affection but it excludes the hip nerves as responsible for its development. The areas are not innervated by the sciatic nerve. He believes that the trouble is not a myalgia, as some maintain but is originally a neuritis of the smaller nerve ramifications in the muscles and that the pain is caused by the traction on the periosteum from the contracture in the muscles. This is demonstrated especially by the localization of the most painful area at the crest of the ilium, at the insertion of the muscle. This affection is amenable to the injection therapy, no matter whether it is given by the Lange technique injection of from 50 to 100 cc of 8 per cent salt solution at one point with a little cocain or by the Peritz technique injection of the same at different points or by Alexander's with 10 cc of Schleich's solution or by Schlesinger's method injection of 10 cc of salt solution just below freezing point. Among the differentiating points of true sciatica is the sign that the thigh cannot be flexed without intense pain if the knee is stretched (Lascaque's) and Fajersztajn's sign, the pain at the emerging point of the sciatic nerve when the sound leg is flexed at the hip and raised.

Munchener medizinische Wochenschrift

December 8, LI, No. 49 pp. 2521-2568

- 92 Activation of Ferment by Alcohol and -- eines indirekten Fermentkatalyses zugleich ein Beitrag zur Frage der L. Heilner
- 93 Test for Creatinin in the Urine (Zur Frage der quantitativen Bestimmung des Kreatinins im Harn) G. Edelfors
- 94 Treatment of Tabes by High-Frequency Currents (Tabes und Hochfrequenzbehandlung) F. Nagelschmidt
- 95 Dangers to the Corner from Gasserectomy (Gefährdung der Hornhaut durch die operative Entfernung des Ganglion Gasserii) Kollner
- 96 Laparotomy for Gangrenous Hernia F. Hesse
- 97 Treatment of Fistulas with Bismuth Paste (Zur Behandlung von Fisteln mit Beckschen Salbeninjektionen) Steinmann und Becher
- 98 Determination of Urobilin in Urine (Zum Nachweis des Urobilins im Harn) I. Strauss
- 99 Benzidin Test for Occult Blood (Zum Blutnachweis mit Benzidinpapier) Weinberger
- 100 Pocket Manometer (Ein neuer einfacher Blutdruckmesser) M. Herz
- 101 Importance for Surgery of Histologic Diagnosis of Tumors (Wert der histologischen Geschwulstdiagnose für das chirurgische Handeln) L. Fraenkel
- 102 Full Correction of Myopia in Children (Vollkorrektur der Kurzsichtigkeit im Kindesalter) O. Neustädter

94 **Tabes Dorsalis and High-Frequency Currents**—Nagel Schmidt writes from the Finsen Institute at Berlin to extol the benefits of electric treatment of tabes. He gives the details of twenty-four cases in which the patients were treated by application of the high-frequency current, with improvement in the subjective symptoms although the objective were not materially modified. He is convinced that these results can not be attributed to suggestion, as the pains in tabes are usually little influenced by suggestion even in hypnosis. Some of the patients had been addicted to morphin. The ataxia was improved only in cases in which the electricity was used as adjuvant to the Frenkel exercise therapy; under these conditions the improvement far surpassed anything observed without it. Incontinence was cured in the five cases in which it existed and the sexual function restored in nearly every instance.

95 **Danger to the Cornea from Gasserectomy**—Kollner states that keratitis followed total removal of the Gasserian ganglion in 25 per cent of the 47 cases on record. He has been examining recently 12 out of a total of 18 patients on whom this operation was performed at Bier's clinic within the last ten years. He found evidence of an affection of the cornea in 10 out of the 12 patients examined unmistakably

the result of injury of the innervation of the cornea during the operation.

97 **Bismuth Paste in Treatment of Fistulas**—Steinmann reports application of Beck's method of injecting bismuth-vasolin paste in six cases, but without satisfactory results. His experience warns against this treatment in the recent cases with elevation of temperature, and in those with profuse secretion, and even in the old cases with scanty secretion, he says that the results do not surpass those obtained with ordinary measures. He thinks that for obtaining information before operative intervention and for purposes of demonstration injection of an iodoform saline answers practically the same purpose with less danger.

100 **Simple Pocket Manometer**—This simple instrument consists merely of a short glass tube and a rubber tube set in a cuff. The graduated glass tube flares into a bulb at each end. The proximal bulb contains a drop of mercury which is unable to drop out into the rubber tube owing to the interposition of a small stopper-like hook-shaped intermediate glass tube. The cuff is held on the wrist with the physician's hand the rubber tube emerging between his index and second fingers, the graduated glass manometer tube lies lightly horizontally on the patient's hand held with thumb up the tube resting along the base of the thumb. The movements of the drop of mercury in the manometer tube form a very sensitive index of the changes in the pulse. The little instrument is nearly as simple and takes up scarcely any more space than the clinical thermometer.

Therapeutische Monatshefte, Berlin

December, VIII, No. 12, pp. 667-678

- 103 Courses of Sulphur Mineral Waters for Children (Schwefelwasser Trinkkuren beim Kinde) O. Heubner
- 104 Anesthesia During Childbirth (Ueber den Wert der Narkose bei der Geburt) J. Velt
- 105 Treatment of Whooping Cough (Zur Therapie des Keuchstussens) A. Czerny
- 106 General Treatment of Infectious Diseases Especially Scarlet Fever (Allgemeinbehandlung von Infektionskrankheiten) E. Grawitz
- 107 Dietetic Treatment of Severe Diabetes (Zur Technik der diätetischen Therapie schwerer Diabetesfälle) W. Weintraud
- 108 Treatment of Blood Diseases (Einige Gesichtspunkte zur Therapie der Blutkrankheiten) E. Meyer
- 109 Treatment of Hypertrophied Prostate (Prostatahypertrophie und ihre Behandlung) A. Hildebrandt
- 110 Treatment of Eczema (Zur Ekzem Therapie) J. Jadassohn
- 111 Mode of Action of Diuretics (Wirkungsweise der Diuretika) L. Asher
- 112 Fraudulent Claims for Pharmaceutical Preparations (Falsch deklarierte Arzneimittel) H. Thoms

103 **Sulphur Water for Children**—Heubner expresses surprise that so little has been written on the use of mineral waters for children. He has found a course of sulphur water extremely beneficial in a number of cases, and has never had any difficulty in getting the child to drink sulphur spring water, a wineglassful, cold, before rising in the morning and another wineglassful from 20 to 30 minutes before breakfast. In some cases another wineglassful (150 gm or 5½) is taken on retiring, the course being continued for four or six weeks. The amounts of course are smaller for very young children. The special indications for the sulphur waters were suggested by the efficacy of such courses for adults with chronic catarrhal conditions in the retropharynx and throat. He believes that such conditions are much more common in children than is generally recognized. They induce a syndrome distinguished by persisting loss of appetite, a tendency to vomit readily, the child throwing up what it has eaten almost at once, sometimes during the meal when coaxed or compelled to eat. There is probably a nervous element in this, an excessively sensitive reflex response, but the breath is malodorous, particularly in the morning, and the throat is coated with tenacious mucus. This syndrome may persist for months being rebellious to all ordinary measures, but yielding to a course of sulphur water. In the rare cases in which the water fails to benefit, the nervous element evidently predominates. He cites a number of instances to show the improvement under the sulphur water after failure of all other measures.

104 **Anesthesia for Labor**—Velt reiterates that childbirth is a normal physiologic process, remarking that the profes-

sor of physiology might well be the one to train students in the management of delivery. Medicine, like everything else, he adds, has its fashions, and it is the fashion now for the woman to clamor for a painless delivery. The obstetrician accepts her cry that she is "completely exhausted," and he yields and anesthetizes, and peace reigns. The anesthetic *à la mode* at present is the scopolamin-morphin technic, he continues, and yet how much has been published to its discredit! How often it has failed; many times it has prolonged parturition beyond measure; many times it has placed the life of the child, and possibly the mother, in danger! Anesthesia is needed, he declares, only for neurasthenic, neuropathic women, in the first place, and, in the second place, only for those who are delivered by neurasthenic accoucheurs. A large proportion even among the neurasthenic women find their strength increasing with the demands made on it. Krönig's recent statement that 40 per cent. of the deliveries in the fashionable quarter of Berlin require forceps, he thinks can be true only in the practice of extremely nervous accoucheurs. If the mountain climber who complains of mountain sickness as an excuse for stopping could be transported without effort to the summit of the mountain, his "mountain sickness" would vanish as quickly as the "completely exhausted" woman in labor rallies the moment the child is born. Under no other conditions can "complete exhaustion" be transformed in the twinkling of an eye into a wonderfully comfortable sense of wellbeing. He urges the necessity for proclaiming that artificial control of the pains of labor is required only for certain neurasthenic women, believing that normal women will be ashamed to brand themselves as neurasthenic by insisting on it. His own experience, he adds, has confirmed what has been reported from Leopold's, Bumm's and Stöckel's clinics which has shown that it is necessary to be very cautious with the scopolamin-morphin technic, and that the physician must stay by the woman constantly to detect impending danger. He warns further that this technic is applicable only when the delivery is just at its beginning. When the end of the period of dilatation is near at hand, a small injection of morphin, not more than 0.01 gm. (0.15 grain), fully answers the purpose.

105. Treatment of Whooping Cough.—Czerny maintains that the nervous element in whooping cough has been too long disregarded and that treatment should be directed principally against this. A change from drugs to hydrotherapy, inhalations or irrigation of the nose often proves effectual. The treatment need not be directed to the organs specially involved in the pertussis process. The isolation of a child with whooping cough is the more efficient the greater the change from its ordinary surroundings. It should not be allowed to see or hear other children with a cough. He believes that the child can be safely isolated by transferring it to a ward where there are no other children with whooping cough. His experience has demonstrated, he says, that the disease is never transmitted from a child kept in bed to the neighboring beds. It requires more skill on the part of the physician to treat whooping cough with suggestion, instead of drugs, but the results will be much more satisfactory except in infants unable to be influenced by the physician's words. Only exceptionally will threatening conditions require a sedative; then comparatively large doses must be given.

106. General Treatment of Infectious Diseases.—Grawitz comments that the success with typhoid should encourage general measures in scarlet fever, diphtheria, etc. Many cases formerly supposed to be non-typhoid, are in reality true typhoid, and the same applies to diphtheria, showing that both are much more common than was formerly believed. The attempts to destroy the germs in their primary focus in the throat he denounces as pernicious, believing that it is impossible actually so to destroy them all, while the antiseptics injure the vital tissues and provide more favorable conditions for the germs left unharmed in the depths, promoting absorption of toxins from the necrotic tissues. The elimination of these toxins through the kidneys does direct injury to the kidney tissue as they pass or are retained in it. The present measure in vogue for elimination

of the toxins fall far short, he says, of what might be accomplished in this line. It is possible to promote elimination of toxins not only in the urine, stools and sweat, but also by modifying the osmotic interchanges and influencing vasomotor functioning and radiation of heat. The vasodilating action causes the fluids in the tissues to pour out into the blood, thus relieving the inflamed mucosæ and organs, like an incision in an abscess. The toxins in the system can also be diluted to comparative harmlessness by copious intake of water. If the elimination of urine can be kept up to from 3 to 5 quarts a day in typhoid, the course of the disease is always much milder. The heart is not disturbed by this copious intake of fluid when it is given in small frequent doses; the condition of the kidneys is the key to the outcome. This makes it all the more important not to promote the generation of toxins in the throat by local disinfecting measures. Prophylactic administration of some mild disinfectant to act on the urinary passages is an important adjuvant. He emphasizes the importance of training nurses in these principles of general treatment of infectious diseases, especially scarlet fever. In the last ten years the mortality from scarlet fever in his service has dropped from a maximum of 22 per cent. to 0.7 per cent. of 147 cases last year—his total including 1,028 cases. When a scarlet-fever patient with a sore throat is admitted, a hot bath is given at once, followed by an electric light sweat bath (in the absence of special contraindications), after which the throat is gargled and swabbed with normal saline solution or chamomile tea and peroxid of hydrogen, and lemonade is given freely, with other beverages, gruels, etc., with rectal enemas of salt solution or milk, and possibly saline infusion. In the severer forms with continuous high fever, cool baths often prove useful. To ward off kidney trouble, hexamethylenamin is given from the first, from 0.25 to 0.5 gm. (3.75 to 7.5 grains) three times a day for four days, then suspended for four days and then resumed as before. Existing albuminuria is no contraindication. In a recent series of 500 cases only 5 or 6 per cent. of the children with intact kidneys showed any trace of nephritis, and in these it was transient. The food for three weeks should be salt-free, rice, gruels, fruit juices and white bread. The mortality in other local institutions averaged 12 per cent. last year.

109. Treatment of Hypertrophied Prostate.—Hildebrandt remarks that it is the prerogative of the prostate to increase in size with age instead of shriveling like all the other organs, and he thinks the hypertrophy is a tumor growth. There are no drugs that will directly reduce its size, but there are few troubles so amenable to simple hygienic and dietetic measures. The patient must learn the causes that promote the enlargement of the gland, so as to be able to avoid them; the food should be light and alcohol should be avoided, as also copious intake of fluids, especially at night. Mild exercise, laxatives, frequent warm baths and rubs are useful, but violent exercise, long journeys and chilling must be avoided and the abdomen must be kept constantly warm. The patient should urinate at the least desire, walking about a little if urination is difficult. Hot sitz baths will frequently bring the urine when all other means have failed. He regards regular aseptic catheterization as the normal method of treating hypertrophy of the prostate, operating only when this proves impracticable, and then removing the entire gland. If the patient is unable to stand this, he does a cystotomy.

112. This article will be discussed editorially.

Wiener klinische Wochenschrift

December 10, XXI, No. 50, pp. 1727-1764

- 113 *Electric Accidents. (Pathologie und Therapie der durch Elektrizität Verunglückten.) S. Jellinek.
- 114 *Plastic Operations on the Nose. (Nasenplastiken.) H. Koschler.
- 115 Febrile Syphilitic Liver Affections. (Mit Fleber verlaufende Syphilis der Leber.) I. S. Nasarow.
- 116 Hysterie Condition Resembling Sleep. (Hysterische, schlafähnliche lethargische Zustände.) J. Donath.
- 117 Serodiagnosis of Syphilis. H. Hecht, L. Detre and E. v. Brezovsky. Commenced in No. 49.

113. Electric Accidents.—Jellinek's thesis reviews the whole field of the pathology and therapy of electric accidents. He

emphasizes the importance of artificial respiration, stimulation, massage and faradization of the heart and neck region, injection of camphor and adrenalin and possibly, as a last resort, a renewed application of the electric current. This last has proved effectual on animals; a flat positive electrode is placed over the heart region, the negative electrode, wrapped in cotton, is inserted in the rectum, and the current allowed to pass for a moment or second. The heart action and the vessels in the neck must be examined after each application. The measures for resuscitation must be kept up until there are signs of certain death; many a life might have been saved if the efforts had not been abandoned too soon. It is extremely important that the appropriate efforts should be begun at once after the accident. The prognosis, in case the victim survives the accident, can be regarded as comparatively favorable.

114. **Plastic Operation on the Nose.**—Koschier has applied in the clinic in two cases Föderl's method of introducing a celluloid frame over which the nose is modeled. The cosmetic results are satisfactory. There are about 25 large perforations to the square inch in the frame, which permits the tissues to grow into the support and thus hold it firm.

Zentralblatt für Gynäkologie, Leipsic

December 19, XXXII, No. 51, pp. 1617-1638

- 118 Dilatation of Cervix. (Zur Frage der Erweiterung der Gebärmutter.) R. Chrobak
- 119 *Cranioclasis and Extraction. (Zur Technik der Kranioclase und Extraktion.) R. Jolly
- 120 *Streptococci in Urine of Parturients. (Bakteriologie des Urins.) M. Henkel and Heye
- 121 *Physostigmin in Postoperative Aseptic Paralytic Ileus. I. Goth
- 122 Abdominal Hysterectomy for Myoma. Risch.
- 123 *Gymnastic Exercises While Reclining After Parturition and Major Gynecologic Operations. Schucking.

119. **Technic of Cranioclasis and Extraction.**—Jolly reports three cases in which he was able to overcome the difficulties presented by the after-coming shoulder by applying a blunt hook to the shoulder, hooking the axilla. In two of the cases severing the clavicle had proved ineffectual, but with the hook extraction was readily completed.

120. **Bacteriology of Urine in Parturients.**—The research reported disclosed the presence of two types of streptococci in one case, the hemolytic evidently coming from different foci.

121. **Physostigmin in Postoperative Ileus.**—Goth reports three cases of severe ileus from paralysis of the bowels after major operations. The symptoms indicated a septic affection except that the tongue was healthy looking. Vigorous peristalsis was induced by physostigmin salicylate, injected in the dose of 0.001 gm. (1/64 grain), this dose being repeated in forty-five minutes. Flatus passed in twenty minutes after the last dose. A third injection was given in one case, and in the third a single dose of 0.002 gm. (1/32 grain) accomplished the purpose in less than half an hour. He calls attention to the fact that in two of these cases the omentum was too short to cover over the intestine as desired, and he thinks that this lack of an omentum covering, for the intestines may have been responsible for the postoperative paralysis.

123. **Exercises While Reclining After Operations.**—Schlicking for some years has been enforcing a series of gymnastic exercises for patients after major operations. The aim is the same as when patients are allowed to get up early, and he thinks the exercises answer the purpose fully as well, while they can be regulated and controlled by supervision of the blood pressure and pulse rate. The heart is relieved as by exercise in walking and standing, but there is no danger of overexertion of the heart or of injury of the pelvic organs. The patient lies on the back, side or abdomen and each group of muscles is exercised with a corresponding interval of repose. The exercises are done very cautiously, at first for half an hour twice a day and later for one hour twice a day. Exercises involving the abdominal musculature alone are not enough. He has never had any mishaps with this technic nor thrombosis in the absence of infection. He has applied these exercises also in anemia and with threatening heart action in puerperæ and for all parturients, and commends them as an important factor in uneventful prompt recovery.

Grèce Médicale, Syra, Greece

August, X, No. 15, pp. 29-32. Last indexed, Sept. 26, p. 1118

- 124 *The Most Ancient Representations of Hippocrates. (Les plus anciennes figures et effigies d'Hippocrate.) R. Vouras.
- November, No. 21, pp. 41-44
- 125 *Bier's Hyperemic Treatment Described in the Writings of Hippocrates. (La nouvelle méthode hyperémique de Bier prise dans les textes d'Hippocrate.) J. Foustanos.
 - 126 Operative Indications in Tuberculosis of the Kidney. (Indications opératoires dans la tuberculose rénale.) B. Guisy.

124. **The Most Ancient Representations of Hippocrates.**—The medical profession in Greece is getting out a Hellenic edition of the works of the physicians of ancient Greece, a colossal work in which Dr. Jean Foustanos of Syra, editor of the *Grèce Médicale*, has taken the initiative. This issue of his journal contains eight illustrations, showing the most ancient representations of the "divine Hippocrates," three representing coins of the island of Cos with Hippocrates' profile and the serpent-entwined rod. The coins date from the first and second century A. D. and the inscriptions are in Greek or Latin. The other illustrations are of the Visconti busts in the Vatican and Villa Albani. Besides these he mentions a MS copy of Hippocrates' works in the Paris public library which contains a full-length representation, but probably without historic value.

125. **Hyperemic Treatment in Hippocrates' Works.**—Foustanos gives the Greek text of a passage in one of Hippocrates' works—cited later by Galen—and then gives a literal translation. Both read almost like a chapter from Bier's work on "Hyperemia." Hippocrates advises treating atrophy after immobilization of a limb, etc., by applying one or more bands to the sound part above, the constriction being tight enough to cause congestion of the blood in the part, but not tight enough to cause pain. After removal of the constricting band he orders the part to be rubbed and bathed so as to rejuvenate and promote the growth of the soft parts. The special point of this treatment, namely, that the constriction is not to be applied to the part affected, but to the sound region above, is duly emphasized, both in his works and in Galen's commentary, as also the fact that the constriction must never induce pain. He ascribed the benefit to the extra supply of nourishment from the blood thus retained in the limb. In conclusion, Foustanos appeals to the medical world to render unto Cesar the things that are Cesar's, and to call hyperemic treatment "the Hippocratic method according to Bier," as the latter rescued it from oblivion.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 3, XXIX, No. 145, pp. 1557-1564

- 127 Infiltration in the Auditory Meatus Sign of Middle Ear Disease. (Foruncoli a sorpresa del condotto auditivo.) De Cigna.
- December 6, No. 146, pp. 1565-1580
- 128 Causes of Death in Cirrhosis of the Liver. (Come e perché muoiono gli epatoclerotici.)
 - 129 Action of Spleen Extract on the Heart Function. Arterial Pressure and Respiration. (Azione che l'estratto splenico esercita sulla funzione cardiaca, etc.) S. Liverato.
 - 130 Chemical Research on Suprarenal Extract. (Studio chimico clinico delle sostanze ipertensive.) G. Comessatti.

December 8, No. 147, pp. 1581-1588

- 131 Relations Between Total Nitrogen and Colloidal Nitrogen in Children's Urine as Index of Liver Functioning. (Rapporto fra azoto totale ed azoto colloidale nelle urine dei bambini.) A. Brinda

December 10, No. 148, pp. 1589-1599

- 132 *Arrest of Hemorrhage in the Liver. (Emostasi epatica.) R. Albanese.

December 13, No. 149, pp. 1597-1612

- 133 Pure Mitral Insufficiency. E. De Renzi
- 134 Efficacy of Parathyroid Extract in Senile Tremor. (Parotiroidina Vassale contro il tremore senile.) L. Tarabini and A. Massaglia
- 135 Atherosclerosis and Atheromasia. S. Lavagna.

132. **Hemostasis in the Liver.**—Caminiti uses magnesium wire for suturing the liver, and Albanese here reports experiments with this method on rabbits and dogs. The catgut suture is made over the absorbable wire drawn through the depths. Four or five pieces of the magnesium wire, about 1 mm. in diameter, are passed through the liver, parallel to the proposed incision. A needle threaded with catgut, doubled, is passed through the parenchyma, passing around beneath the magnesium wire and out on the other side. A series of such

stitches is taken both underneath and above the magnesium wire, which supplies a firm support for the sutures. The results were good in the experiments related, there being no possibility for the stitches to pull out or for hemorrhage, while the magnesium support was absorbed in time.

Policlinico, Rome

December 13, XV, Practical Section, No. 50, pp. 1573-1604

136 Chronic Appendicitis. A. Capogrossi. Commenced in No. 49.

December, Medical Section, No. 12, pp. 525-568

137 Expansibility of Sound and Diseased Apices. (Sulla espansibilità degli apici sani ed ammalati.) V. Maragliano.

138 Opsonic Power of Exudates in Serous Cavities. (Il potere opsonico degli essudati delle cavità sierose.) F. Schupfer. Commenced in No. 11.

139 Tuberculous Endocarditis. (Intorno all' esistenza dell' endocardite tubercolare.) F. Fulci.

Hospitalstidende, Copenhagen

October 28, LI, No. 44, pp. 1233-1264

140 *Albuminometer. (Et nyt Albuminometer.) L. E. Walbum.

November 4, No. 45, pp. 1265-1288

141 Glandular Fever. (Febris glandularis.) K. Schäffer. Commenced in No. 43.

142 *Depressions in Sacral Region. (Symbolae ad cognitionem gelasinorum sacralium foemineorum.) R. Bergh.

November 25, No. 48, pp. 1345-1368

143 *Peptic Ulcer in the Jejunum. J. Jensen. Commenced in No. 47.

140. Albuminometer.—The albuminometer, commended in abstract 74 on page 174 of THE JOURNAL, January 9, is illustrated and the results are given of comparative tests with it and other means for measuring the amount of albumin in the urine. It was suggested by Christensen's tannic acid technic and determination of the degree of opacity resulting. This method requires only from ten to fifteen minutes, but has not been much used, notwithstanding its advantages. Walbum has shortened the time still more, and states that with his little apparatus it is possible to make a quantitative urinalysis in two or three minutes. It consists merely of a graduated tube standing in an upright beside the slide of opalescent glass used for comparison of the transparency. A black bar at the rear of the apparatus serves as a background for estimating the transparency. The percentage of albumin in the urine can thus be read at a glance in less than five minutes. Two c.c. of the urine are mixed with an aqueous 10 per cent. solution of trichloroacetic acid in the graduated tube, the reagent being added until the fluid reaches the mark 0.1. If the urine is less transparent than the opalescent glass, 25 per cent. salt solution is added to the fluid until the transparency in the tube matches that of the glass. This allows determination of albumin from 0.1 to 1 per 1,000; with a slight modification, proportions up to 10 per cent. can also be determined.

142. Depressions in Sacral Region.—Bergh has examined 759 women in the ward for venereal diseases at Copenhagen, looking for the kite or lozenge-shaped figure formed by the depressions under the lowest lumbar vertebra and over the posterior superior spines of the ilia and tip of the sacrum. He found the figure more of a square, and states that it was marked in all but 20 per cent. of the women. In men the figure formed is more of a triangle. He mentions that these depressions are found in the ancient statues of women, but the anatomists seemed to overlook them until comparatively recently. The upper depression is a useful base in pelvimetry.

143. Peptic Ulcer in the Jejunum.—Jensen reviews about 53 cases of this affection found scattered in the literature and analyzes them from different points of view. The prognosis is always grave on account of the danger of perforation and frequency of recurrences. This occurred in sixteen out of the thirty patients followed for any length of time, and among the others the reports mention merely that the patients were free from recurrence "to date," which was four years in 1, and from only one to two years in 3 others. In 19 cases the recurrence proved fatal, the patients succumbing to the effects of perforation in 10 instances, to postoperative peritonitis in 5, and to tetany in another. Perforation into the peritoneum occurred in 18 cases. The outlook is better

in the more chronic cases, with adhesions, but even in this form the affection is a very serious one. The jejunal ulcer developed in 37 cases after anterior antecolic and in 13 after posterior retrocolic gastroenterostomy; in 1 each after the anterior retrocolic technic, and the posterior antecolic, and once after the Y technic. Classifying the cases in another way shows that the peptic ulcer developed in 37 after anterior and in 13 after posterior gastroenterostomy; in 5 after the Y technic; in 6 after gastroenterostomy with enteroanastomosis, and in 8 cases in which a button had been used. He remarks that a peptic jejunal ulcer is much more dangerous than the gastric ulcer for which the gastroenterostomy was done originally.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

I. THE PRESENT STATUS OF THE LEPROSY PROBLEM IN HAWAII. II. THE REACTION OF LEPTERS TO MORO'S "PERCUTANEOUS" TEST. III. THE POSSIBILITY OF THE MOSQUITO ACTING IN THE TRANSMISSION OF LEPROSY. By Walter R. Brinckerhoff, S.B., M.D., Director, Leprosy Investigation Station, Molokai, Hawaii. Treasury Dept., Public Health and Marine-Hospital Service of the United States. Paper. Pp. 24. Washington: Government Printing Office, 1908.

A STUDY OF THE OCULAR MANIFESTATIONS OF SYSTEMIC GONORRHEA, with Reports of Cases of this Nature. By W. Gordon M. Byers, M.D., Assistant Oculist, Royal Victoria Hospital. (Studies from the Royal Victoria Hospital, Montreal.) Vol. II, No. 2. (Ophthalmology 2.) February, 1908. Paper. Pp. 131. Montreal: The Herald Press.

THE URINE AND CLINICAL CHEMISTRY OF THE GASTRIC CONTENTS, THE COMMON POISONS, AND MILK. By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Ed. 8. Cloth. Pp. 160, with illustrations. Price, \$1. Philadelphia: P. Blakiston's Son & Co., 1908.

ATLAS UND GRUNDRISSE DER TOPOGRAPHISCHEN UND ANGEWANDTEN ANATOMIE. (Lehmann's Medizinische Atlanten, I.) Von Oskar Schultze, Professor der Anatomie in Würzburg. Cloth. Pp. 224, with illustrations. Price, 16 marks. München: J. F. Lehmann's Verlag, 1909.

DIE MECHANISCHE UND PSYCHISCHE BEHANDLUNG DER TUBERKULÖSEN BESONDERS IN HEILSTÄTTEN. (Vorlesungen über Tuberkulose, herausgegeben von Georg Liebe, Bd. I.) Von Georg Liebe. Paper. Pp. 267, Price, 5 marks. München: J. F. Lehmann's Verlag, 1909.

ROTUNDA MIDWIFERY FOR NURSES AND MIDWIVES. By G. T. Wrench, M.D., Late Assistant Master Rotunda Hospital, with an Introduction by the Master of the Rotunda Hospital. Cloth. Pp. 324, with illustrations. Price, \$2. New York: Oxford Press, 1908.

GUIDE TO THE CLINICAL EXAMINATION AND TREATMENT OF SICK CHILDREN. Ed. 2. By John Thomson, M.D., Fellow of the Royal College of Physicians of Edinburgh. Cloth. Pp. 629, with illustrations. Price, \$3.75. Chicago: W. T. Keener & Co.

PROCEEDINGS OF THE SEVENTH ANNUAL MEETING OF THE NEW JERSEY STATE CONFERENCE OF CHARITIES AND CORRECTION, Held at Jersey City, N. J., February, 1908. Paper. Pp. 292. Trenton, N. J.: MacCrellish & Quigley, State Printers, 1908.

EINE NEUE HYPOTHESE UEBER URSACHEN UND WESEN DÖSARTIGER GESCHWÜLSTE. Von Otto Alchel, a.o. Professor der Gynäkologie an der Universität Santiago. Paper. Pp. 36. Price, 1.50 marks. München: J. F. Lehmann's Verlag, 1908.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY. By E. R. Stitt, A.B., Ph.G., M.D., Surgeon, U. S. Navy. Cloth. Pp. 204, with illustrations. Price, \$1.50. Philadelphia: P. Blakiston's Son & Co., 1909.

THE DEVELOPMENT OF COMMERCIAL PORTS. I. What the Ports of Europe are Doing. II. Chicago's Commercial Opportunity. Report to the Chicago Harbor Commission. By J. Paul Goode. Paper. Pp. 103.

FIFTEENTH ANNUAL REPORT OF THE BOARD OF REGISTRATION IN MEDICINE OF THE COMMONWEALTH OF MASSACHUSETTS. For the Year 1908. Paper. Pp. 30. Boston: Wright & Potter Printing Co., 1909.

ANNUAL REPORT OF THE BOARD OF DIRECTORS AND SUPERINTENDENT OF THE SOUTH CAROLINA PENITENTIARY, for the Year 1907. Paper. Pp. 49. Columbia, S. C.: Gonzales & Bryan, State Printers, 1908.

SECOND REPORT OF THE BABIES' DISPENSARY AND HOSPITAL OF CLEVELAND. For the Year 1908. Paper. Pp. 68, with illustrations. Cleveland, Ohio: The Babies' Dispensary and Hospital.

TENTH BIENNIAL REPORT OF THE BOARD OF TRUSTEES OF THE DELAWARE STATE HOSPITAL AT FARMHURST, December 1908. Paper. Pp. 58. Wilmington, Del.: The Star Printing Co.

THE MOSQUITOES OF THE PHILIPPINE ISLANDS. By Clara Southmayd Ludlow, B.S., M.Sc. Paper. Pp. 65. Washington, D. C., 1908.

QUACKS AND GRATERS. By Ex-Osteopath. Cloth. Pp. 126. Price, \$1.25. Cincinnati, Ohio: The Lancet-Clinic Press.

THE BABY. By Daniel Rollins Brown, A.B., M.D. Cloth. Pp. 200. Price, \$1. Boston: Whitcomb & Barrows.

THE HOME FOR AGED MEN IN WORCESTER. Paper. Pp. 25. Worcester, Mass.: The Blanchard Press, 1905.

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THE CLASSIFICATION OF PULMONARY TUBERCULOSIS

AND STATISTICAL REPORTS OF SANATORIUMS

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INTRODUCTION

The results in general of the treatment of pulmonary tuberculosis are most encouraging. It is said to be the most curable of all chronic diseases, and many autopsy statistics are quoted to prove that even under the most unfavorable conditions healing occurs in a large proportion of those affected. There are to-day few physicians of large experience who have not repeatedly observed the healing of pulmonary tuberculosis. In the mind of the laity the former pessimistic view is gradually waning, and in many instances is replaced by the belief that every case of tuberculosis is curable. Some physicians of wide experience even go so far as to say that every case of non-acute pure pulmonary tuberculosis is curable. Neither of these statements, however, can stand in the light of our present knowledge. It is an easy task so to improve the general condition of a patient as to give him all the outward appearances of health; but it is a far different task to get him into such a general and pulmonary condition that after a few months at work he will not relapse.

Pathologic anatomy furnishes abundant proof that pulmonary tuberculosis is curable. The statistics of Naegeli, of Blumer and Lartigau, of Vibert, of Osler, of Loomis, all show how frequent is the spontaneous or natural cure. "In all tubercles two processes go on, the one caseation, destructive and dangerous, and the other sclerosis, conservative and healing. The ultimate result in a given case depends on the capabilities of the body to restrict and limit the growth of the bacilli. In the granulation products and associated pneumonia a scar tissue is formed while the smaller caseous areas become impregnated with lime salts. To such conditions alone should the term healing be applied. When the fibroid change encapsulates but does not involve the entire tuberculous tissue, the tubercle may be termed involuted or quiescent, but is not destroyed. When cavities of any size have formed, healing, in the proper sense of the term, does not occur." (Osler).

Healing is not absolute in the strictest sense of the word so long as the scars enclose virulent bacilli and W. Green has found that until scar tissue or calcification entirely replaces all caseation, virulent tubercle bacilli may still be present. Large foci and even cavities can be so thickly imbedded in scar tissue that the tuberculosis can remain stationary throughout an entire lifetime. This "relative healing" then has the value of an

absolute cure. "Many phthisikers do not live long enough to die of their tuberculosis" (Penzoldt). Clinical experience also teaches us that many patients who have had pulmonary tuberculosis recover and live out their natural days.

CLASSIFICATION

The classification of pulmonary tuberculosis has often been attempted, and even to-day no perfectly satisfactory classification has been achieved. A patient may have an acute onset, while later the disease may become subacute and finally chronic, proceeding to complete arrest or to termination with an acute type of pulmonary tuberculosis or with acute miliary tuberculosis. Such variations in the disease render classification difficult.

The following classification of the various forms of tuberculosis occurring in the lungs is satisfactory but insufficient for accurate clinical description of the various stages of the disease treated in sanatoriums:

TUBERCULOSIS OF THE LUNGS

- I. Acute miliary tuberculosis.
- II. Acute pulmonary tuberculosis.
 1. Pneumonic tuberculosis.
 2. Bronchopneumonic tuberculosis.
- III. Subacute pulmonary tuberculosis.
- IV. Chronic pulmonary tuberculosis.
 1. Chronic ulcerative pulmonary tuberculosis.
 2. Fibroid phthisis.

Classifications have been based on the origin of the disease (hereditary, congenital, or acquired); on the temperament of the patient (erethismic or torpid); on the age (infantile, developmental, adult and senile); on dyscrasias (gouty, serofulous, diabetic, alcoholic, luetic, hysterical); on the ease of diagnosis (latent, larval, manifest); on the onset (catarrhal, anemic, dyspeptic, pleuritic, hemoptic, febrile, nervous, dyspneic); on the course (active and stationary and progressive; remitting, intermitting and retrogressive; acute, subacute and chronic); on the extent of the lesions (circumscribed, disseminated, more diffuse; or incipient, limited, moderately extensive and advanced); on the pathologic changes (consolidation, softening, cavity formation; germination, conglomeration, softening, cavity formation; parenchymatous, interstitial, bronchitic and post-pleuritic forms); on the degree of susceptibility (decided, yielding, or lost organic resistance); on the secondary infections (pure tuberculosis, stage of mixed infection, or phthisis), and in part at least on prognosis (phthisis incipiens, confirmata et desperata).

The usual form of tuberculosis treated in sanatoriums falls under the head of chronic pulmonary tuberculosis and the classification at present under discussion deals mainly with chronic pulmonary tuberculosis, though acute phthisis and acute pneumonic phthisis, as well as miliary tuberculosis of the lungs can also be classified in it. These varieties occur as complications in patients with the more chronic types.

Pulmonary tuberculosis is a relapsing disease, and the results must therefore be considered under two heads, immediate and ultimate. The immediate results may be manipulated, even unconsciously, but the test of time is rigorous, and "living" and "dead" admit of no personal equation or variation of definition. The ultimate results, therefore, after a sufficient lapse of time show clearly the true results of treatment. The effect on the ultimate results of the convalescent homes, of the agricultural colonies, and of other institutions for the aid of patients on discharge from the sanatorium has not yet been worked out. Their value must be considerable. The immediate results are much more difficult to handle, and comparison of these results from different sanatoriums has, on account of the lack of uniformity, up to this time been impossible or at least of little or no value.

Sanatorium patients must be classified on admission, on discharge, and according to the ultimate results. Many classifications have been suggested, but none so far is fully satisfactory. A classification should take into account, not only the amount of disease in the lungs but the actual condition of the patient. It must consider symptoms, as well as the pathologic and general conditions, for no one alone is sufficient. The pathologic conditions on which some classifications depend are based on the interpretation of the physical signs, which are, as is well known, notoriously uncertain. The personal equation should be eliminated as far as possible. The divisions, or classes, should be as sharply separated as possible and not too numerous, three being the number most widely advocated for many years. Prognosis and classification are closely associated.

A.—CLASSIFICATION ON ADMISSION

The classifications used in pulmonary tuberculosis may be said to be based, first, on the pathologic conditions in the lungs; second, on one or more symptoms, or third, on the pathology, the symptomatology and the general condition of the pulmonary invalid.

I.—BASED ON PATHOLOGY

Most classifications have been based on the pathologic process in the lungs; for example, I, fibrosis, II, colliquative necrosis; or, I, infiltration, II, consolidation, III, cavity formation. Brehmer¹ (1889) recognized, I, infiltration, II, cavity formation, and, III, colliquation. More recently Petruschky² (1897) has suggested, I, invasion of the lymphatic glands; II, formation of tubercles in the tissues, skin, lungs, etc. (closed tuberculosis), and, III, tissue necrosis (open tuberculosis) which he subdivided into, 1, tuberculosis proper; 2, a transition period of febrile attacks, and, 3, septicemia. While recent pathologic work upholds this in part, the classification really divides pulmonary tuberculosis into two stages, closed and open, the latter of which is subdivided according to symptoms. It is not as satisfactory as Turban's classification, which has been widely adopted.

Turban³ classifies patients wholly on the physical findings, which, changing as they do, and occurring with such different symptoms render this scheme far from accurate in portraying in what real stage of the disease any patient may be, a point he early acknowledged. By

this classification, Stage I includes those patients whose slight lesion does not exceed one lobe or two half lobes. Stage II includes those whose slight lesion extends further than Stage I but at most to two lobes or a severe lesion extending at most to the volume of one lobe. Under Stage III are all not under I and II. "Slight lesion" is synonymous with infiltration and "severe lesion" with consolidation and excavation. Purely pleuritic dulness of slight extent is left out of account. Slight alterations in the breath sounds, for example, harsh breathing or prolonged expiration without change in percussion and without râles, are not to be considered. This properly balances both the extent and intensity of the pathologic changes, two factors, one of which is ignored in most anatomic classifications.⁴

The Hanseatic League⁵ has adopted a classification with eight divisions, with slight gradations one from another, for example, I, simple catarrh of one apex; II, of both apices; III, widespread catarrh; IV, infiltration of small extent at one apex and so on. This, like Turban's classification, completely ignores symptoms and the general state of health, and gives no idea of the patient's real condition.

The Imperial Board of Health⁶ of Germany has suggested the following classification and has used it in the report, which it publishes, of all the patients treated in Germany:

The side is first indicated

I. Slight, limited to a small area of one lobe, especially at the apex, and not extending below the clavicle nor the spine of the scapula, with or without fine, but without tympanitic râles.

II. Area of the disease of wider extent than I, of less than III.

III. Involvement at least of a whole or of several whole lobes, or signs of cavity formation.

This classification, evidently based on Turban's, is hardly to be preferred to his, but it restricts the first class. Both this and Turban's include in the third class, which is too broad, many patients who do remarkably well. The classification suggested by Burton-Fanning takes into account only the extent and not the intensity of the pulmonary disease.

It has been suggested by the last International Conference at Vienna⁷ that the Turban classification of the extent of physical signs should be modified. This modification, known as the Turban-Gerhardt classification, is as follows:

TURBAN-GERHARDT CLASSIFICATION

R=right. L=left.

I. Disease of slight severity, limited to small areas of one lobe; that, for instance, in case of affection of both apices may not extend beyond the spine of scapula and the clavicles; in case of affection of one apex, frontal, beyond the second rib.

II. Disease of slight severity, more extensive than I, but affecting at most the volume of one lobe, or severe disease, extending at most to the volume of one-half lobe.

III. All cases extending beyond II, and all such with considerable cavities.

By disease of slight severity is to be understood: disseminated foci manifested by slight dulness, impure, rough or weak vesicular, vesiculobronchial, or bronchovesicular breathing and fine and medium râles.

1. Mittheilungen aus Dr. Brehmer's Heilanstalt, Wiesbaden, 1889, p. 55.

2. Ueber die Behandlung der Tuberkulose nach Koch, Deutsch. med. Wchnschr., 1897, No. 39.

3. The Diagnosis of Tuberculosis of the Lung, New York, 1906, p. 42.

4. Wilkinson: Brit. Med. Jour., June 13, 1902. I. Fraenkel: Specielle Pathologie und Therapie der Lungenkrankheiten, II, 713.

5. Die Handhabung des Heilverfahrens bei Verletherten im Jahre 1896, Hamburg, 1897.

6. Tuberculosis, Berlin, 1907, vi, 140.

7. Tuberculosis, Berlin, 1907, vi, 559.

By severe disease: compact infiltration recognized by great dullness, very weak (indeterminate) bronchovesicular breathing, with or without râles.

Considerable cavities to be recognized by a tympanitic note, amphoric breathing, and extensive, coarse, consonating râles come under Stage III.

Pleuritic dullness, if only of a few centimeters extent, is to be left out of account; if it is considerable, pleuritis should be specially mentioned under tuberculous complications.

The stage of disease is to be indicated for each side separately. The case, as a whole, is to be classified according to the more diseased side; for example: R II, L I=Stage II.

The objection to this classification is the unevenness of the distribution; and, while it divides the first group of Turban, which really needs division, the adoption of the summary, discussed elsewhere in this report, divides that group in a very satisfactory manner, and the enlargement of the third group makes the Turban-Gerhardt classification of less value.

II.—BASED ON SYMPTOMS

Previous to the discovery of auscultation and of more recent pathologic knowledge, classifications were based upon the severity of the general and localizing symptoms, for example, early or beginning, middle or confirmed and last or terminal stages. Few classifications have recently been founded purely upon symptoms. Meissen⁸ has suggested dividing all patients into afebrile and febrile, which latter he subdivides into those with high fever (101.3° and over) and those with low fever (below this). Von Ruck⁹ and Spengler¹⁰ also use fever for the first division.

III.—BASED ON SYMPTOMS AND PATHOLOGY

While Laennec, Bayle, Clarke, Louis and Alison had all based classifications on symptoms and physical signs, the first classification in America based on these data was that suggested by J. W. Gleitsmann in the biennial report of the Mountain Sanitarium for Pulmonary Diseases (1877), the second sanatorium in America for the treatment of pulmonary diseases. He suggested the following:

1. Apical catarrh and infiltration of the smallest extent.
2. Extended infiltrations or small destructions with preserved general constitution.
3. Extended infiltration with hectic symptoms, cavities, constitution broken down.
4. Acute miliary tuberculosis.
5. All such with other diseases (all non-tuberculous diseases).

This classification bears close resemblance to the one recently suggested by the National Association for the Study and Prevention of Tuberculosis.

Trudeau's classification (1887), on which that of the National Association is based, takes into account both the pathology (that is, physical signs) and the local and general involvement. It is as follows:

1. *Incipient*.—Cases in which both the physical and rational signs point to but slight local and constitutional involvement.
2. *Advanced*.—Cases in which the localized disease process is either extensive or in an advanced stage, or in which, with a comparatively slight amount of pulmonary involvement, the rational signs point to grave constitutional impairment or to some complication.

3. *Far Advanced*.—Cases in which both the rational and physical signs warrant the term.

The classification suggested to the American Climatological Association¹¹ by a committee appointed for that purpose is based largely on Trudeau's, but prefixes an incipient stage to what are termed the first, second and third stages. This classification, which was not adopted and has apparently been employed by no one, is as follows:

Incipient.—Slight physical and subjective signs, with history indicative of pulmonary tuberculosis. Sputa, if present, without bacilli.

First stage: Definite physical signs of localized infiltration; total involvement less than half a lobe, whether at one or more points; cough and expectoration with bacilli; constitutional symptoms slight. (In disseminated cases, expectoration and bacilli may be absent with constitutional symptoms more severe.)

Second stage: Infiltration of single or multiple areas approaching or equal in amount to one lobe; or smaller area in stage of softening; cough and expectoration with bacilli; constitutional symptoms severe.

Third stage: Infiltration in excess of one lobe or, if less, in stage of well-developed excavation; more severe constitutional symptoms.

Koeniger's¹² classification (1, slight with one apex; 2, medium severity with one or two apices to a greater extent; 3, severe, one or more whole lobes), leaves too much to the personal equation and depends almost entirely on "extent" alone. Meissen⁸ has prefixed a prophylactic stage before Stage I of Turban and added a hectic stage after Stage III of Turban. Von Ruck⁹ divides his patients into those with chronic pulmonary tuberculosis and those with phthisis, each of which he subdivides into afebrile and febrile. Each class under "phthisis" he further subdivides into three, first, second and third stages. This classification can not be recommended, as it has too many classes, and being based in part on the amount of expectoration, must be far from accurate. Spengler's¹² classification is much like von Ruck's.

King's¹³ classification (of I, early cases with, 1, mild and, 2, those with acute symptoms; II, advanced cases with, 1, favorable or, 2, unfavorable symptoms; and, III, "long-standing cases" (over one year) with, 1, ulceration, and, 2, with fibrosis predominating) leaves too much to the personal equation to be of marked value. There is no generally adopted scheme in England, as Bulstrode's Report¹⁴ shows. There are so many classifications used that it is very difficult indeed to compare the statistics; and some are so complex that they can not be recommended, for example, Campbell¹⁵ divides his patients into those with one or both lungs affected. He makes the three usual divisions under the first (one lung) and tries to classify by the conditions of the two lungs, all the possibilities under five heads under the second.

The best classification so far suggested is that adopted by the National Association for the Prevention and Study of Tuberculosis and based largely on Trudeau's and not on Turban's. The incipient stage is very narrowly defined, in the hope of encouraging early diagnosis. This makes the "moderately advanced" stage

8. Was können die Fachärzte zunächst zur Bekämpfung der Tuberkulose thun? Therap. Monatsch., 1897, p. 582. See also Schroeder and Blumenfeld, Therapie der Lungensch. Leipzig, 1904, p. 125.

9. Classification for Cases of Pulmonary Tuberculosis and Phthisis. Tr. Am. Climat. Assn., 1903, xx, 272.

10. Koch's Festschrift, 1903, p. 119.

11. Tr. Am. Climat. Assn., 1903, xix, 23.

12. Erfahrungen über Lungentuberkulose und Lippspringe, Therap. Monatsch. 1895, p. 535. (quoted by Turban.)

13. Seventh An. Rep. Loomis Sanatorium, 1903.

14. Fifty-fifth An. Rep. to the Local Government Board, 1905-1906: On Sanatoriums for Consumptives and Certain Other Aspects of the Tuberculosis Question. London, 1908, p. 59.

15. Brit. Med. Jour., 1905, II, 852.

include patients differing much more widely than those in the upper ranks of the "moderately advanced" and in the incipient stages. The exact amount of involvement is not stated, but any patient with signs extending below the second rib should be classified as advanced. The classification is as follows:

INCIPIENT (FAVORABLE)

Slight initial lesion in the form of infiltration limited to the apices or a small part of one lobe.

No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight).

Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest.

Expectoration usually small in amount or absent.

Tubercle bacilli may be present or absent.

MODERATELY ADVANCED

No marked impairment of function, either local or constitutional.

Localized consolidation moderate in extent, with little or no evidence of destruction of tissue;

Or disseminated fibroid deposits.

No serious complications.

FAR ADVANCED

Marked impairment of function, local and constitutional.

Localized consolidation intense;

Or disseminated areas of softening;

Or serious complications.

ACUTE MILIARY TUBERCULOSIS

B.—CLASSIFICATION ON DISCHARGE

Greater diversity of opinion and of usage exists in the classification on discharge than on entrance. The plan suggested by the German Imperial Board of Health⁶ is excellent but impracticable:

1. Absolute healing.
2. Relative healing.
3. Marked improvement and transfer to a more favorable stage.
4. Slight improvement in the same stage.
5. Stationary.
6. Slight deterioration in the same stage.
7. Marked deterioration and passage to a less favorable stage.
8. Death.

Healed, well, cured, apparently cured, arrested, greatly improved, able to work and positive have all been used more or less interchangeably, which renders comparison of results impossible. The classification of positive, negative and died (Turban) is of little real value and is based in part on the individual judgment. Ability to work on discharge unless tested in the sanatorium depends largely on the individual judgment; and this criterion, while necessary by law for the insurance sanatoriums of Germany, is hardly to be recommended for use elsewhere. It is in reality based on economic and not on medical standards. Classifications using such terms as "well," "almost well," "much improved," have much to do with the personal equation.

It seems necessary to employ more classes here than on admission and five are generally used. Trudeau's classification, on which the classification of the National Association for the Prevention and Study of Tuberculosis is based, is almost universally used in America, and is as follows:

1. *Apparently Cured*.—Cases in which the rational signs of phthisis and the bacilli in the expectoration have been absent for at least three months or who have no expectoration at

all; any abnormal physical signs remaining being interpreted as indicative of a healed lesion.

2. *Arrested*.—Cases in which cough, expectoration and bacilli are still present, but in which all constitutional disturbance has disappeared for several months; the physical signs being interpreted as indicative of a retrogressive or arrested process.

3, 4. *Improved and Failed*.—Trudeau has not defined these.

5. *Died*.

The classification used by Bowditch¹⁶ at the Sharon and Massachusetts State Sanatoriums does not employ the term "apparently cured" but makes "arrest" include the cases of all patients "in whom active symptoms have disappeared and there is an apparent return to health." This division is too large and needs subdivision.

The National Association for the Study and Prevention of Tuberculosis has slightly modified Trudeau's classification, as follows:

Progressive (unimproved).—All essential symptoms and signs unabated or increased.

Improved.—Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

Arrested.—Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.¹⁷

Apparently Cured.—All constitutional symptoms and expectoration with bacilli absent for a period of three months; the physical signs to be those of a healed lesion.

The term "quiescent" is placed under "improved" in this classification. "Apparently cured" leaves much for the individual standard of judgment when it requires the physical signs to be those of a healed lesion. This admits widely different interpretations. In the statistics from the Adirondack Cottage Sanitarium the cases of all patients who have moderately coarse râles or more than a few fine râles at one apex extending at most to the clavicle or the level of the second vertebral spine have been termed "arrested." The justification of this interpretation of "apparently cured" is borne out by the ultimate results obtained at this institution. The use of the tuberculin test as a test of cure has been suggested by many observers. The results obtained in this way and by clinical methods do not agree, as many patients clinically "apparently cured" react to tuberculin. Nagel¹⁸ discharged 114 of 183 patients as clinically cured, and of these 114 patients 38 per cent. reacted to tuberculin. Careful clinical observations determine with sufficient accuracy whether or not a patient is "apparently cured." Burton-Fanning¹⁹ has advocated subdividing "arrest" into two classes: those able and those unable to work. Burton-Fanning's "recovery" implies fitness for work.

C.—CLASSIFICATION FOR ULTIMATE RESULTS

The real test of any treatment is of course the division of all patients into two classes, living and dead. The division of the first class is difficult, but "living" should be subdivided, for it is manifestly unfair to class those tottering on the brink of the grave with patients who for years have been well and who work under ordinary conditions of life. Here ability to work is of most value, for

16. Tenth Ann. Rep. Sharon Sanatorium.

17. The length of time mentioned is, of course, somewhat arbitrary, but is intended to cover the cases which frequently occur, where the patients leave a sanatorium for various reasons, contrary to advice, after a stay of a few weeks, although all active symptoms may have ceased completely soon after entrance.

18. Beitr. z. Klin. d. Tuberk., 1906, v, 451.

19. The Open-Air Treatment of Pulmonary Tuberculosis, Chicago, 1905, p. 61.

it is difficult to obtain a physician's report on the general or pulmonary condition or even on the examination of the sputum.

At the Adirondack Cottage Sanitarium the terms "well" and "living" have been used. "Well" includes all patients known to be enjoying good health without a relapse for a period of two years, while "living" includes many patients who but for the time limit would be classed as "well," and also many about whose state of health the present information is not sufficiently definite.

The National Association for the Study and Prevention of Tuberculosis defines "cured" as follows: "All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life. As previously stated, an absolute cure can be determined only after death. At the Adirondack Cottage Sanitarium it is impossible to use this term "cured," for sufficient information can not be obtained.

THE CLASSIFICATION ADVISED

After careful consideration of all these factors, the following classification to be used on admission, on discharge, and for ultimate results, is probably the best. The classification of the incipient stage as defined by the National Association has been rearranged but very slightly altered. The definition of "moderately advanced" has been very slightly altered. The other definitions have been changed very slightly, but under ultimate results the term "well" has been inserted.

I.—CLASSIFICATION ON ADMISSION

INCIPIENT

Slight or no constitutional symptoms (including particularly gastric or intestinal disturbance or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours.

Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent.

Slight infiltration, limited to the apex of one or both lungs or a small part of one lobe.

No tuberculous complications.

MODERATELY ADVANCED

No marked impairment of function, either local or constitutional.

Localized consolidation, moderate in extent, with slight or no evidence of cavity formation.

No serious complications.

FAR ADVANCED

Marked impairment of function, local and constitutional.

Marked consolidation of an entire lobe;

Or disseminated areas of beginning cavity formation;

Or serious complications.

MILIARY TUBERCULOSIS

II.—CLASSIFICATION ON DISCHARGE

APPARENTLY CURED

All constitutional symptoms and expectoration with bacilli absent for a period of three months; the physical signs to be those of a healed lesion.

ARRESTED

Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.²⁰

20. The length of time mentioned is, of course, somewhat arbitrary, but is intended to cover the cases which frequently occur, where the patients leave a sanatorium for various reasons, contrary to advice, after a stay of a few weeks, although all active symptoms may have ceased completely soon after entrance.

IMPROVED

Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

UNIMPROVED OR PROGRESSIVE

All essential symptoms and signs unabated or increased.

DIED

III.—CLASSIFICATION OF ULTIMATE RESULTS.

CURED

All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

WELL

Patients who fulfill all the conditions required under "cured," but about whose sputum no definite information can be obtained.

ARRESTED

See "On Discharge."

IMPROVED

See "On Discharge."

PROGRESSIVE

See "On Discharge."

DEAD

DEFINITION OF TERMS

Since the adoption by the National Association of their classification it has been clearly recognized among the workers in the different sanatoriums in America that, while this schema was almost universally employed, there was still great diversity in the way in which patients were classified.²¹ Consequently, the American Sanatorium Association believed that the terms used in this classification should be defined exactly, and a committee was appointed to present a report to the association. I was a member of this committee and wish to acknowledge my indebtedness to the different members of the committee²² for many suggestions that are contained in the following definitions. The best classification for purposes of comparison of results is that which to the greatest extent excludes the variation due to individual standards of judgment. These definitions are accordingly submitted, not with the idea that they are ultimate or final, but simply for the purpose of suggesting a working basis for physicians in different sanatoriums. Many minor points are of course far from satisfactory, but no classification is perfect.

TERMS USED IN DEFINITION OF "INCIPIENT"

1. *Slight Constitutional Disturbance*.—Slight loss of appetite, of strength, of weight; lassitude; possibly slight acceleration of pulse or possibly slight elevation of temperature. The impairment of health may be so slight that the patient does not look or feel sick in the ordinary sense of the word.

2. *Slight Elevation of Temperature*.—Maximum temperature after rest never over 99.5 to 100 by mouth (or 100.5 per rectum).

3. *Slight Acceleration of Pulse*.—Maximum pulse-rate not over 90.

4. *Small Amount of Expectoration*.—Not over 30 c.c. in 24 hours.

5. *Absence of Tubercle Bacilli*.—Each monthly examination (if the sputum be negative) to consist of a careful microscopic examination, with a mechanical stage, of two smears, devoting at least three minutes to each smear, made from selected particles (at least six from different parts) of the sputum on each of three successive days. The morning sputum should always be obtained, or, better, the minute bits

21. Stubbert recognized in 1901 that the various stages should be more accurately defined and attempted to do so (*Am. Climatological Assn.*, 1901, xvii, 161).

22. H. L. Barnes, L. Rosenberg, Estes Nichols, H. S. Goodall.

that some patients in an arrested stage raise at very infrequent intervals. It is not yet deemed wise to insist on digestion and centrifugalization or on inoculation of guinea-pigs.

6. *Infiltration.*—Physical signs: slight prominence of the clavicle, lessened movement of chest, narrowing of apical resonance with lessened movement of base of lung, slight or no change of resonance, distant or loud and harsh breathing, with or without some change in the rhythm (that is, prolonged expiration), vocal resonance possibly slightly increased; or fine or moderately coarse râles present or absent. If diagnosis be positive, any one of these.

7. *Apex.*—That portion of the lung situated above the clavicle and the third vertebral spine.

8. *A Small Part of One Lobe.*—An area of one or two intercostal spaces, or an area not exceeding 60 to 80 square centimeters in extent, according to the size of the patient. (An attempt is here made to include an area of a lobe not greater in extent than that included in two intercostal spaces.)

TERMS USED IN DEFINITION OF "MODERATELY ADVANCED"

9. *Marked Impairment of Function, Either Local or Constitutional.*—Local: Marked dyspnea on exertion, limiting seriously the patient's activity. Constitutional: Marked weakness, anorexia, tachycardia.

10. *Moderate Extent of Localized Consolidation.*—An area of one-half lobe or less, but may involve both apices; marked dulness, bronchial or decidedly bronchovesicular breathing; markedly increased vocal resonance; râles usually present. These signs are to be sharply limited as to area instead of gradually shading into normal physical signs.

11. *Evidence of Destruction of Tissue.*—Presence of tubercle bacilli or elastic fibers in the sputum or the presence of the physical signs of a cavity. There are no absolutely certain physical signs of cavity but a combination of any four of the following signs is to be taken as indicative of a cavity: 1, cracked-pot note; 2, amphoric breathing; 3, intense whispering pectoriloquy; 4, a veiled puff or post-tussive suction; 5, bubbling or resonant râles. "Physical signs of softening" do not admit of any definition, apart from that of cavity formation, and the term should not be used.

12. *Serious Complications.*—These should be limited to tuberculous complications, such as meningitis, pharyngitis, laryngitis (except slight thickening in the posterior interarytenoid space, and superficial ulceration of a vocal cord), enteritis, peritonitis, nephritis, cystitis, orchitis, adenitis (unless very slight), etc.

TERMS USED IN DEFINITION OF "FAR ADVANCED"

13. *Intense Localized Consolidation.*—This term should be replaced by "marked consolidation of an entire lobe." "Marked consolidation" indicates dulness merging into flatness, bronchial or tubular breathing and other signs of consolidation as defined in 10.

TERMS USED IN DEFINITION OF "APPARENTLY CURED"

14. *Constitutional Symptoms.*—These include elevation of temperature, loss of weight, loss of strength, night sweats, chills, tachycardia, cyanosis, loss of appetite, amenorrhea, etc.

15. *Physical Signs of a Healed Lesion.*—These may embrace every physical sign of infiltration or consolidation (see 6, 10), with the exception of râles; which must be permanently absent, except possibly a few fine râles at the base, probably atelectatic in origin, and at one apex or over a small part of one lobe. Râles in the latter two places are to be heard only during the cough or the inspiration which follows the cough at the end of a prolonged expiration.

TERMS USED IN DEFINITION OF "IMPROVED"

16. *Constitutional Symptoms Lessened or Entirely Absent.*—By this term is meant an improvement in the general condition as shown either by a gain in both weight and strength or by reduction of previous febrile temperature to normal without loss of strength.

TERMS USED IN DEFINITION OF "UNIMPROVED" OR "PROGRESSIVE"

17. *Essential Symptoms and Signs.*—These include, among others, weight, strength, appetite, night sweats, hemoptysis,

pleurisy, dyspnea, temperature, pulse-rate, dulness, changes in vocal resonance and respiratory movement, râles.

TERMS USED IN DEFINITION OF "CURED"

18. *Ordinary Conditions of Life.*—This term as used implies that the patient is able to live in an environment where he is able to support himself without the assistance of others, or to live in his former surroundings and pursue his former occupation.

19. *Temperature.*—The best method and the best time to take the temperature is still unsettled. It should be recognized, however, that when no note is made of the fact, the oral temperature is indicated and that the temperature should not be taken for one-half to one hour after meals. The thermometer should be kept in the mouth, which has been kept closed for at least five to ten minutes, for five minutes to detect the slighter rises of temperature.

The "normal" temperature is still a mooted point, but far more is known in regard to the oral than the rectal temperature. The range for each patient varies somewhat, but it is unwise to consider any patient's disease "arrested" or "apparently cured" when the maximum temperature for three or more days averages over 99 F. Absorption from an old focus may cause rise of temperature when the disease is quiescent, but no one can separate such a condition from a slow advance of the disease, imperceptible by our present methods of examination. A rise for a single day to 99.5 F., or even higher, when some definite factor (coryza, tonsillitis, etc.) is unquestionably the cause, should be disregarded in making up the average on discharge. It would undoubtedly be wise to insist on a two-hourly temperature record were this possible, but in any case the temperature should be taken whenever possible after rest (that is, complete relaxation, mental and physical, in a sitting or reclining posture) for at least one hour. Quiet reading or conversation need not be forbidden some patients.

Under the definition of the physical signs of a healed lesion, it will be noted that a few râles at the base, probably atelectatic in origin, or a few râles following the expiratory cough are included. While it is true that this admits some degree of individual judgment into this definition, it is hardly wise to insist on the complete absence of fine râles before classifying a patient as apparently cured. It must, however, be recognized that the results on discharge from a sanatorium are of far less importance than those that relate to the ultimate results. It is much more difficult to exclude the individual standards of judgment in the former, while in the latter this can be much more readily done. As far as I am aware, there are only one or two sanatoriums in America where the expiratory cough is used systematically and the presence of râles excluded in this way. It will be noted that under the definition of "cured" no mention has been made of physical signs. This means that under this term there will be grouped a large number of patients in whom the disease becomes only permanently arrested, and, in fact, as Squire has remarked, an absolute cure can be determined only after death. These facts should be constantly borne in mind in connection with this classification. While I am of the opinion that it would be best to insist on the absence of all râles in any patient classified as apparently cured, still I do not feel that at present this can be insisted on.

Some have objected altogether to the use of the term "apparently cured" and believe that only "arrested" should be used. Classifications are chiefly of value in enabling distinctions to be made between definite classes, and while some patients with numerous râles may do as well as others without râles when both patients have

practically no symptoms, still a strong difference does exist between these two classes, and it should be noted in the classification on discharge. Again, a few hold that any patient with expectoration of any amount, no matter how slight, no matter whether tubercle bacilli have been absent from it on repeated examinations for months, should not be classified as apparently cured. This is not right, for a patient may have a slight hypersecretion of mucus from that part of his bronchial tree that has been seriously affected: and to state that for this reason he is not apparently cured seems manifestly unfair.

A number of interesting points arise in regard to the practical application of any classification. In the first place the question of time is exceedingly difficult to incorporate into any classification. For instance, it is doubtful whether a patient who has a few signs of infil-

sion into a second sanatorium. This patient, if he has improved considerably, would have to be reclassified on admission into the second sanatorium. These are points of practical interest which must be considered in connection with any classification. While they detract from the value of a classification, they do not seriously affect it when they are clearly borne in mind. The percentage of error is of little importance when it is allowed for.

METHODS OF PHYSICAL EXAMINATION

Any classification must necessarily depend in part on physical signs: and, as long as different examiners follow different methods of examination, the extent of the physical signs will vary and the usefulness of any classification intended for comparison will be greatly limited. To overcome this difficulty the patient should

TABLE 1—TURBAN'S REPORT

No.	Condition.		Extent of Physical Signs (Turban).		Duration of Disease.	General Condition.	Digestion.	Range of Pulse 7 days on admission, 2 days on discharge.	Av. Max. Temp. 7 days on admission, 2 days on discharge.	T. B.			Complications	Tuberculin. Variety, No. of Days and Doses. Highest Dose in Gram.
			Both Lungs.	Each Lung.						Previous.	Re-idence.			
2473	On admission.	Mod. Adv.	I	R	24 months.	Favorable...	Unimpaired.	80-101	99.1	O	+	+	...	B. F. 215 days
	At discharge.	Arrested.	III	R2L2	32 months.	Favorable...	Unimpaired.	86-92	98.7	+			....	53 doses .030 gm.
2474	A D	Incipient. Ap. Cured	I O	R	8 months. 14 months.	Favorable... Favorable. ..	Unimpaired. Unimpaired.	70-90 76-80	98.9 98.8	O O	+	O		
2475	A D	Mod. Adv. Ap. Cured	I I	L R	3 months 8 months.	Unfavorable. Favorable.	Unimpaired. Unimpaired.	82-100 88-96	98.9 99.0	O O	O	O	Tub-arthritis ankle	

TABLE 3—RESULTS OF SPUTUM EXAMINATIONS OF PATIENTS

Class.	Extent of Physical Signs According to Turban.	Treatment.	ARD +++	ARD ++O	ARD +OO	ARD O++	ARD OO+	ARD O+O	ARD OOO	PARD +OOO
Incipient..	I	Without Tu. ...	...	4=13%	4=13%			3=10%	15=48%	5=16%
Incipient... ..	I	With Tu. ...	5=22%	4=17%	1=4%			1=4%	9=39%	3=13%
Moderately advanced	I	Without Tu. ...	1=9%	4=36%	1=9%				4=36%	1=9%
Moderately advanced	I	With Tu. ...	4=44%	3=33%					2=22%	
Moderately advanced	II	Without Tu. ...	6=32%	6=22%	3=11%	3=11%		1=4%	6=22%	2=7%
Moderately advanced	II	With Tu. ...	6=37%	4=5%	3=19%		1=6%	1=6%	1=6%	
Moderately advanced	III	Without Tu. ...	1=14%	3=43%	2=29%				1=14%	
Moderately advanced	III	With Tu.	6=60%	1=10%					1=10%	2=20%
Far advanced	III	With Tu. ...	1=100%							

NOTE—O=—Tubercle bacilli absent. +—Present. A=Admission. R=During Residence. D=On Discharge. P=Previous to Admission.

When T. B. were present on admission, no note is made with regard to previous examinations.

When T. B. were present previous to admission and also at any time during residence, they are marked as present on admission.

tration above one clavicle and who has had symptoms for a year, should be placed in the same class with a patient with the same extent of physical signs, the same severity of symptoms, but whose history dates back for only one month. At the present time it does not seem practical to divide these patients into two classes. Another point that must be duly considered is the fact that a patient may apply for admission to a sanatorium and present signs and symptoms that would cause him to be classified among those in a moderately advanced stage. He may recover completely and lose symptoms and physical signs, but after a lapse of some months may apply for readmission, presenting signs and symptoms that would cause him to be classified among those in the incipient stage. In another instance a patient may spend some months in a sanatorium, but, not wishing to return to his home for one reason or another, may apply for admis-

be stripped to the waist and râles should be said to be absent only when they are absent after the patient exhales, coughs at the end of exhalation and then takes a full, deep, fairly quick breath through his mouth. A stethoscope must be used for this examination.

STATISTICAL REPORTS OF SANATORIUMS

It is well recognized that without some definite system of classification it is impossible to compare accurately the reports from different sanatoriums, but the adoption of a uniform scheme for a classification is not sufficient. The sanatorium workers, in order to facilitate comparison of various results in different parts of the world, should adopt a uniform system of statistical report; and only in this way can the real effect of climate be estimated. The best statistical report is the one suggested by Turban with several modifications.

TABLE 2.—SUMMARY

Hygienic-dietetic Treatment Without Tuberculin. Patients who Stayed Over 90 Days. Average Residence, 200 Days.									
Class.	Extent of Phys- ical Signs Ac- cording to Turban.	T. B. Found at Any Time.	Cases.	Appar. Cured.	Arrested.	Im- proved.	Progres- sive.	Died.	
Incipient.....	I	O	15=20%	10=67%	4=27%	1=7%			
Incipient.....	I	+	16=21%	3=10%	12=75%	1=6%			
Moderately advanced....	I	O	4=5%	1=25%	2=50%		1=25%		
Moderately advanced....	I	+	7=9%		7=100%				
Moderately advanced....	II	O	5=7%	2=10%	2=40%	1=20%			
Moderately advanced....	II	+	22=29%		13=59%	5=23%	4=18%		
Moderately advanced....	III	O	2=2%		2=100%				
Moderately advanced....	III	+	5=7%		5=100%				
Far advanced.....	III	+							

Hygienic-dietetic Treatment With Tuberculin. Patients Who Took Tuberculin More Than 90 Days Average Residence, 250 Days.									
Class.	Extent of Phys- ical Signs Ac- cording to Turban.	T. B. Found at Any Time.	Cases.	Appar. Cured.	Arrested.	Im- proved.	Progres- sive.	Died.	
Incipient.....	I	O	9=15%	5=56%	1=11%	3=33%			
Incipient.....	I	+	14=24%	4=29%	8=57%	1=7%	1=7%		
Moderately advanced....	I	O	2=3%		2=100%				
Moderately advanced....	I	+	7=12%		6=86%	1=14%			
Moderately advanced....	II	O	1=2%		1=100%				
Moderately advanced....	II	+	15=25%		11=73%	3=20%	1=7%		
Moderately advanced....	III	O	1=2%		1=100%				
Moderately advanced....	III	+	9=15%		4=44%	3=33%	2=22%		
Far advanced.....	III	+	1=2%			1=100%			

There were also 15 patients who stayed less than 90 days. There were also 23 patients who took tuberculin for less than 90 days. Note.—In this summary patients who had T. B. in the sputum previous to admission are counted as +, as well as those who had T. B. at any time during residence.

Every sanatorium should use this scheme for reporting its individual cases. It is shown in Table 1.

The scheme explains itself. It contains the condition of the patient on admission and discharge, the extent of the physical signs in each lung, as well as the presence or absence of the signs of cavity,²³ the duration of the disease, the general condition, the state of the digestion, the range of the pulse, the average maximum temperature, the presence or absence of tubercle bacilli on admission and discharge as well as previous to admission and during residence. The presence or absence of complications, and whether or not the patient has been subjected to tuberculin are also noted. The adoption of this tabulation will present clearly the facts from which the annual reports of the various sanatoriums are compiled. Few sanatoriums, however, up to this time have adopted a satisfactory summary of results of treatment. I devised some time ago the summary shown in Table 2.

This summary divides all patients into the three classes advised by the National Association for the Study and Prevention of Tuberculosis, and, further, each of these is subdivided into the different classes according to the extent of physical signs. Turban's classification has been used for this purpose, and attention is called to the fact that the three original classes, incipient, moderately advanced, and far advanced, have nothing in common with Turban's classification, which deals only with the extent of physical signs. Finally, each of these stages is divided again into two classes, according to whether the lesion has ever been open (tubercle bacilli present at any time) or has always been closed. This summary, it is believed, will remove the grounds for several criticisms of the classification adopted by the National Association. Both "moderately advanced" and "far advanced" classes are too broad, it is urged and rightly, and as much difference if not more exists within these groups than between them or between the "moderately advanced" and "incipient" classes. This summary divides the "moderately advanced" group into six divisions, all of which should be reported on separately. It also divides the "far advanced" group into two or more divisions.

The results of the sputum examinations recorded in most reports is also far from satisfactory, and the scheme shown in Table 3 is suggested. When tuberculin has not been used it is of course unnecessary to divide the patients into those who have and those who have not received tuberculin.

23. This datum can usually be indicated by a small c after R or L in the second column under the extent of physical signs.

Congenital Megacolon.—Gaujoux in the *Archives de Medecine des Enfants*, 1908, XI, p. 721, devotes fifteen pages to tabulation of the details of 62 cases of alleged Hirschsprung's disease, aiming to show that actual congenital, idiopathic megacolon is extremely rare, and that it must of necessity prove fatal soon after birth. In most cases presenting the Hirschsprung syndrome, the trouble is the result of undue length of the sigmoid flexure. As the child grows, the parts develop into more harmonious proportions and the anomaly becomes corrected. The tonicity of the anus sphincter should be tested, the capacity of the rectum investigated, the diet regulated and a systematic course of laxatives be instituted, to exclude all other causes before accepting congenital malformation as responsible for the symptoms observed.

TUBERCULOSIS IN PANAMA

INCIDENCE AND ASSOCIATION WITH PLEURAL
ADHESIONS*

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Discussing the geographical distribution of tuberculosis, Baldwin, writing in Osler's "System of Modern Medicine," says: "The tropical countries furnish no statistics as to the frequency of tuberculosis, but it is said to be less common than in temperate regions, though more rapid in its course." He gives the percentages for temperate regions estimated by most pathologists, who usually regarded only gross appearances, as varying between 30 and 60 per cent., but thinks that probably the recent estimate of Harbitz of 50 to 70 per cent. for all ages represents an approximation of the truth.

While acting pathologist of the Board of Health Laboratory I examined 287 bodies with special reference to tuberculosis and pleural adhesions. Pleural thickenings, puckered cicatrices and adhesions were not classified as tuberculous lesions; calcified, caseous and fibro-caseous lesions and miliary tubercles were considered tuberculous. The diagnoses for the greater part were based on gross appearances, but sixty-eight lesions from twenty-five bodies were examined microscopically to control the gross diagnoses. Of twenty-four bodies considered tuberculous all but one proved to be so. The gross diagnosis was not correct in this body or else the very small tubercle was missed in preparing the section for microscopic examination. On the other hand, one body with doubtful lesions that were not accepted as tuberculous proved to be tuberculous. Of the sixty-eight lesions examined one other erroneous gross diagnosis was certainly made, the lesion being a miliary abscess of the spleen. This body, however, had other lesions that were microscopically tuberculous. It seems fair to assume, therefore, that the gross diagnoses of tuberculosis were approximately correct for the series, and I feel that whatever error there may be is on the side of conservatism.

FREQUENCY OF TUBERCULOSIS

Tuberculosis was present in 213, or 74.2 per cent., of the 287 bodies examined. This percentage is greater than the estimate of Harbitz and considerably greater than the estimates of most pathologists for temperate regions. In the following table is given the frequency with regard to nationality, age, color, sex, employment with the Canal Commission, and length of time on the Isthmus of Panama:

Of the bodies of patients who had come from tropical countries 73.6 per cent. were tuberculous. The greater frequency of tuberculosis among Jamaicans was probably due to the greater average age of the patients, 38.6 years. The average age of the Barbadians was well under 30 years. The frequency of tuberculosis did not appear to be affected by color, sex or employment with the Canal Commission. It was greater in those who had been on the Isthmus of Panama more than three months than in those who had lived on the Isthmus less than three months. After three months, residence on the isthmus

bore no special relation to the frequency. The frequency varied directly, however, with the age of the patients, increasing with increasing age until the sixth decade. The group included between the sixth and ninth decades inclusive is small enough, however, to admit of error; likewise the group in the second decade.

TABLE 1. FREQUENCY OF TUBERCULOSIS IN PANAMA WITH RELATION TO NATIONALITY, AGE, COLOR, ETC.

Nationality (country.)	Autopsies. No.	Tuberculous.— No.	Per Cent.
Tropical Countries—			
Barbadoes	84	56	66.7
Jamaica	52	44	84.6
Martinique	44	32	72.7
Other West India Islands..	48	32	66.7
Colombia	13	11	84.6
Panama	7	7	100
Venezuela	1	1	100
Mexico	1	1	100
Total, tropical countries.	250	184	73.6
Spain	16	13	81.3
United States	1	1	100
France	2	2	100
Italy	1	1	100
Ireland	1	1	100
Sweden	1	0	0
Unclassified	15	11	73.3
Total	287	213	74.2
Age—			
Second decade	9	5	55.6
Third decade	111	75	67.6
Fourth decade	52	42	80.8
Fifth decade	41	35	85.4
Sixth-ninth decade	20	16	80.0
Unknown	54	40	74.1
Color—White	28	23	82.1
Colored	256	188	73.4
Not noted	3	2	66.7
Sex—Female	7	5	71.4
Male	280	208	74.3
I. C. employees	251	186	74.1
Non-employees	12	9	75
Unclassified	24	18	75
Time in Panama—			
Under one month	11	7	63.6
One-three months	48	33	68.8
Four-six months	45	38	84.4
Seven-eleven months	29	22	75.9
One-five years	52	38	73.1
Five-forty-four years	42	37	88.1
Unknown	60	38	63.3
Deaths from tuberculosis	287	21	7.3

Twenty-one deaths in 287, that is, 7.3 per cent., were due to tuberculosis. Percentages estimated for temperate regions, where more resistant white predominate, vary between 10 and 15.

NATURE OF THE LESIONS

A great majority of the lesions were calcified or well encapsulated and appeared to be healed or arrested foci. I can not venture to estimate the proportion of lesions that might have been considered progressive, though the number was relatively small. Cavity formation in the lungs occurred in twenty-four bodies and general miliary tuberculosis in thirteen. These figures include the bodies of those in whom death was due to tuberculosis.

LOCATION OF THE LESIONS

Left lung	73
Right lung	79
Left pleura	80
Right pleura	75
Left peribronchial lymph nodes	64
Right peribronchial lymph nodes	71
Pericardium	2
Extrathoracic lesions	36
Extrathoracic lesions only	3
Abdominal lymph glands	18
Abdominal lymph glands only	2
Intestines (ulceration)	14
Intestines (perforation)	1
Peritoneum (general)	4
Meninges	1
Heart (miliary tubercles)	1
Adrenals (miliary tubercles)	2

The spleen and liver were always involved in general miliary tuberculosis, and not infrequently with pulmonary tuberculosis a few miliary tubercles or caseous

*Read at the meeting of the Medical Society of the Isthmian Canal Zone, August, 1908.

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masses could be found. In one instance a large caseous mass about 4 cm. in diameter was present in the liver just at the anterior margin. The liver several times presented also tuberculous cavities from 2 mm. to 1 cm. in diameter with caseous walls and containing greenish-yellow semifluid material. A few miliary tubercles could usually be demonstrated in the kidneys in general miliary tuberculosis, though in three instances no tubercles could be found. In two of these three cases tubercle bacilli were found in the urine. Eleven of the eighteen instances of tuberculosis of the abdominal lymph glands were associated with general miliary tuberculosis and one with cavity formation in the lungs. In one body a chain of calcified lymph glands began in the retroperitoneal glands and extended upward into the thorax, including the hepatic, pancreatic, splenic and peribronchial nodes. There was only one small fibro-caseous nodule in the right lung. The pleuræ were usually involved with the lungs, the lesions being generally subpleural tubercles. The lungs and pleuræ were involved eighty-eight times without involvement of the peribronchial lymph nodes; the latter forty-six times without lesions of the lungs or pleuræ. The lungs and pleuræ showed lesions 163 times altogether; the peribronchial nodes 121 times.

PLEURAL ADHESIONS

There were adhesions between the visceral and parietal layers of the pleura or between the pleural reflections in the fissures in 187, or 65 + per cent., of the 287 bodies. The adhesions varied from delicate fibrous bands to total obliteration of both cavities. The right pleura alone showed adhesions 59 times, the left 40, both 88; that is, there were adhesions of the right 147 times, of the left 128 times.

TUBERCULOSIS AND PLEURAL ADHESIONS

Tuberculous lesions and pleural adhesions were associated in 165 bodies; that is, 77 + per cent. of the 213 tuberculous bodies showed pleural adhesions, and 88 + per cent. of those with adhesions were tuberculous. There were in the whole series 74 bodies with no tuberculous lesions, and among these were 22, or 29.7 per cent., with pleural adhesions. It must be assumed, then, that approximately 29.7 per cent., or 85, of the 287 bodies would have shown pleural adhesions had there been no tuberculosis. But there were 187 instances of adhesions. The difference, 102, or 54.5 per cent., of all bodies with adhesions, should represent approximately the number dependent on tuberculosis.

There are two sources of error in the above calculation:

1. It is conceivable, indeed, quite probable, that in the 63 tuberculous bodies that showed adhesions of supposedly non-tuberculous origin, adhesions of both tuberculous and non-tuberculous nature occurred. The adhesions in many bodies were extensive enough to admit of this conception. They were bilateral in 80 autopsies; one cavity was obliterated in 21, and both cavities in 9. This error, if it could be corrected, would increase the percentage of tuberculous adhesions.

2. It is probable that tuberculosis would have been found more frequently if more delicate methods of examination had been used, such as animal inoculation and microscopic examination of all adhesions and peribronchial lymph nodes. Correction of this error would increase also the percentage of tuberculous adhesions.

In view of these sources of error we must consider 54.5 per cent. a minimum for pleural adhesions of tuberculous origin in this series of autopsies.

The frequency of adhesions in the tuberculous bodies varied with the site of the tuberculous lesions in the thorax, as shown in the following tables:

TABLE 2.—FREQUENCY OF ADHESIONS AND SITE OF TUBERCULOUS LESIONS

Adhesions.	Tb. left.	Tb. right.	Tb. both sides.
Left only	16	5	12
Right only	17	22	9
Both sides	13	25	42
No adhesions	21	21	6
Total	67	73	69

TABLE 3.—FREQUENCY OF ADHESIONS AND SITE OF TUBERCULOUS LESIONS

Adhesions	Tb. lungs (or pleuræ).	Tb. peribron. lymph nodes.	Tb. lungs (or pleuræ) and P. L.
No adhesions	77 (85.5%)	27 (58.7%)	59 (80.8%)
Total	90	46	73

Tuberculosis on the right was associated with adhesions a little more often than tuberculosis on the left, and the adhesions were much more frequently on the tuberculous side. Tuberculosis on both sides was much more frequently associated with adhesions than when the lesions were on only one side, and in two-thirds of the bodies the adhesions were on both sides.

From Table 3 it is seen that tuberculosis of the lungs (or pleuræ) was associated with adhesions in over 20 per cent. more bodies than tuberculosis of the peribronchial lymph nodes only. When lesions were in the lymph nodes only there were adhesions in 58.7 per cent., while in non-tuberculous bodies adhesions occurred in only 29.7 per cent., or about one-half as often. This tends to show that, without gross involvement of lungs or pleuræ, a tuberculous pleuritis may arise simply from lesions of the lymph nodes. Since also in about forty bodies adhesions occurred at a distance from tuberculous lesions and even on the opposite side of the thorax, the idea suggests itself that the tuberculous virus may cause a pleuritis at a considerable distance from actual lesions.

In conclusion, from my study of tuberculosis at autopsy, I can not avoid the opinion that climatic and hygienic conditions in Panama are quite favorable for the arrest or cure of tuberculous infections, and my clinical experience also has supported this view.

SUMMARY

1. Tuberculous lesions were found in 74.2 per cent. of 287 consecutive autopsies.
2. A great majority of lesions were small focal ones and appeared to be healed or arrested.
3. Only twenty-one, or 7.3 per cent., of the 287 deaths were due to tuberculosis.
4. Pleural adhesions were present in 65 + per cent.
5. Of the pleural adhesions 54.5 per cent. was probably the minimum due to tuberculosis.
6. Adhesions occurred much more frequently when tuberculous lesions were on both sides of the thorax than when on one side only, and much more frequently also when the lungs (or the pleuræ) were involved than when the involvement was limited to the peribronchial lymph nodes.

My thanks are due to Col. W. C. Gorgas, chief sanitary officer, for permission to publish this paper.

THE CARE AND TREATMENT OF OPIUM-
SMOKERS IN THE PHILIPPINES *

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In the early part of 1907 the Philippine Commission passed the opium law to regulate the sale and use of opium and its derivatives in the Philippine Islands. Before the enactment of this law the smoking of the drug and use of it by other methods was allowed under certain restrictions. The new law, however, put a rigid ban on the use of the drug in any manner, except when under the direct supervision of a registered physician. At the same time the law made the mere possession of the drug or the paraphernalia for its use, by one unqualified, a crime punishable by fine and imprisonment.

The authorities, recognizing the great amount of suffering and even danger to life which would result from the sudden withdrawal of the narcotic, passed an act by which funds were appropriated for the care and treatment of any habitué who would present himself or for those who were found by officers of the law to be using the drug and who desired hospital treatment in place of a term in prison. At the beginning the patients were cared for at San Juan de Dios Hospital, but later, on account of cramped quarters, they were transferred to the San Lazaro Hospital. When the transfer was made the new law went into full effect, and, therefore, many new cases were received at San Lazaro during the first few days that the work was taken over at that place, resulting in a total of two hundred cases, from which the facts and conclusions of this paper are drawn.

In reviewing the results obtained in treating the drug habit two separate classes of cures can be considered. The first class is that in which the habitué is, after treatment, discharged physically and mentally normal. He eats well, sleeps well, assimilates his food properly, has no longing or desire for opium, and has gone sufficiently long without the drug to demonstrate to him that its use is not necessary for the continuance of his life, happiness and well-being. The second class of cures is that in which all the results of the first are accomplished and, in addition, the desire for opium is eliminated for the future. Examples of this class are, I believe, seldom, if ever, fully realized. The man who has once been addicted to the use of the drug will, after discontinuing its use, almost certainly at some future time encounter unpleasant conditions or circumstances that will bring back to his mind the realization of the immediate relief and freedom the drug can give him. At such a time the man's own inherent strength of will is all that keeps him from returning to his old habits.

PLAN OF TREATMENT AT SAN LAZARO

By the treatment as instituted at San Lazaro the results described in the first class are the only ones we hoped to accomplish or claim to have achieved. In caring for the patients a series of three wards was arranged. Ward 1 was the receiving ward, and here the patients were first assigned on entering the hospital. A careful examination of the patient's physical condition was first made, a bath was given him, he was carefully searched for any concealed opium, and was questioned through an interpreter as to the amount of opium or morphin he had been accustomed to take, his method of administering it and the length of time that he had been

using it. He was kept in this ward, where he was always under close observation of trained male nurses, as long as he was receiving opium or sedatives in any form and as long as his physical condition demanded attention.

Ward 2 might be called the hospital ward, for it was here that all patients were sent on development of serious symptoms or intercurrent diseases. This ward was under the care of graduate female nurses, and the patients here received close attention as to diet, nursing, etc.

Ward 3 may be classed as the convalescent ward. When a patient arrived at that stage at which he was no longer receiving any opium, when his sleep was undisturbed without the use of sedatives, when all gastrointestinal symptoms had disappeared and his appetite had regained its natural tone—in other words, when he seemed to have returned to a normal state, both physically and mentally, he was removed to this ward. No opiates of any kind were given here, and if a patient should develop symptoms calling for the administration of his favorite drug he was first returned to Ward 1 before same was given. Briefly, this ward was a sort of detention station in which the apparently cured patients were confined under observation awaiting dismissal. The only treatment given here was a one-dram dose of the elixir of iron, quinin and strychnin after meals. In regard to the time the patients should be held in this ward after the opium had been discontinued, it was finally decided to make a general rule calling for ten days' detention, provided the patient's physical condition was all right on the expiration of this period.

By this plan the patients were continuously separated into three classes: first, those dangerously ill and requiring close medical attention; second, those steadily recovering from the use of the drug and requiring less attention; and, finally, a class receiving no opium or specific treatment whatever.

PATIENTS

As to the nationality of the patients treated, 197 were Chinamen and 3 were Filipinos. All were of the male sex. Their ages were from 17 to 63 years, with an average of 35 1/3 years. The length of time in which they had been habitués of the drug was from six months to thirty-three years, with an average of seven and one-half years. This average, subtracted from the first average, shows that the average age at which they became addicted to the habit was 27 5/6 years.

A very interesting fact which developed while ascertaining the most popular method of self-administration was the great number who were found to use the hypodermic syringe. Our usual mind-picture of the Chinese opium-fiend is one in which he is reclining on a couch with his alcohol lamp and crude opium in front of him, his pipe in his mouth, and surrounded by the reeking smoke of the burning opium. This picture has, however, to a great extent become a thing of the past. Although the Chinaman may have been slow in accepting most of the new ideas and inventions of the Occident, he has very quickly seen the true worth of the hypodermic syringe and its great advantages over the old opium-pipe. In it he has an instrument whose action is swift and sure. It was found that 29 per cent. of our patients at San Lazaro had used the drug in this manner. On close questioning, however, it developed that all but two or three had got their first taste of the effects of the juice of the poppy by the smoking method. The smallest number was those whose favorite method was the eating of the drug, the percentage of those who used it in this

* Read before the Manila Medical Society, Aug. 10, 1908.

masses could be found. In one instance a large caseous mass about 4 cm. in diameter was present in the liver just at the anterior margin. The liver several times presented also tuberculous cavities from 2 mm. to 1 cm. in diameter with caseous walls and containing greenish-yellow semifluid material. A few miliary tubercles could usually be demonstrated in the kidneys in general miliary tuberculosis, though in three instances no tubercles could be found. In two of these three cases tubercle bacilli were found in the urine. Eleven of the eighteen instances of tuberculosis of the abdominal lymph glands were associated with general miliary tuberculosis and one with cavity formation in the lungs. In one body a chain of calcified lymph glands began in the retroperitoneal glands and extended upward into the thorax, including the hepatic, pancreatic, splenic and peribronchial nodes. There was only one small fibro-caseous nodule in the right lung. The pleuræ were usually involved with the lungs, the lesions being generally subpleural tubercles. The lungs and pleuræ were involved eighty-eight times without involvement of the peribronchial lymph nodes; the latter forty-six times without lesions of the lungs or pleuræ. The lungs and pleuræ showed lesions 163 times altogether; the peribronchial nodes 121 times.

PLEURAL ADHESIONS

There were adhesions between the visceral and parietal layers of the pleura or between the pleural reflections in the fissures in 187, or 65 + per cent., of the 287 bodies. The adhesions varied from delicate fibrous bands to total obliteration of both cavities. The right pleura alone showed adhesions 59 times, the left 40, both 88; that is, there were adhesions of the right 147 times, of the left 128 times.

TUBERCULOSIS AND PLEURAL ADHESIONS

Tuberculous lesions and pleural adhesions were associated in 165 bodies; that is, 77 + per cent. of the 213 tuberculous bodies showed pleural adhesions, and 88 + per cent. of those with adhesions were tuberculous. There were in the whole series 74 bodies with no tuberculous lesions, and among these were 22, or 29.7 per cent., with pleural adhesions. It must be assumed, then, that approximately 29.7 per cent., or 85, of the 287 bodies would have shown pleural adhesions had there been no tuberculosis. But there were 187 instances of adhesions. The difference, 102, or 54.5 per cent., of all bodies with adhesions, should represent approximately the number dependent on tuberculosis.

There are two sources of error in the above calculation:

1. It is conceivable, indeed, quite probable, that in the 63 tuberculous bodies that showed adhesions of supposedly non-tuberculous origin, adhesions of both tuberculous and non-tuberculous nature occurred. The adhesions in many bodies were extensive enough to admit of this conception. They were bilateral in 80 autopsies; one cavity was obliterated in 21, and both cavities in 9. This error, if it could be corrected, would increase the percentage of tuberculous adhesions.

2. It is probable that tuberculosis would have been found more frequently if more delicate methods of examination had been used, such as animal inoculation and microscopic examination of all adhesions and peribronchial lymph nodes. Correction of this error would increase also the percentage of tuberculous adhesions.

In view of these sources of error we must consider 54.5 per cent. a minimum for pleural adhesions of tuberculous origin in this series of autopsies.

The frequency of adhesions in the tuberculous bodies varied with the site of the tuberculous lesions in the thorax, as shown in the following tables:

TABLE 2.—FREQUENCY OF ADHESIONS AND SITE OF TUBERCULOUS LESIONS

Adhesions.	Tb. left.	Tb. right.	Tb. both sides.
Left only	16	5	12
Right only	17	22	9
Both sides	13	25	42
No adhesions	21	21	6
Total	67	73	69

TABLE 3.—FREQUENCY OF ADHESIONS AND SITE OF TUBERCULOUS LESIONS

Adhesions	Tb. lungs (or pleuræ).	Tb. peribron. lymph nodes.	Tb. lungs (or pleuræ) and P. L.
Adhesions	77 (85.5%)	27 (58.7%)	59 (80.8%)
No adhesions	13	19	14
Total	90	46	73

Tuberculosis on the right was associated with adhesions a little more often than tuberculosis on the left, and the adhesions were much more frequently on the tuberculous side. Tuberculosis on both sides was much more frequently associated with adhesions than when the lesions were on only one side, and in two-thirds of the bodies the adhesions were on both sides.

From Table 3 it is seen that tuberculosis of the lungs (or pleuræ) was associated with adhesions in over 20 per cent. more bodies than tuberculosis of the peribronchial lymph nodes only. When lesions were in the lymph nodes only there were adhesions in 58.7 per cent., while in non-tuberculous bodies adhesions occurred in only 29.7 per cent., or about one-half as often. This tends to show that, without gross involvement of lungs or pleuræ, a tuberculous pleuritis may arise simply from lesions of the lymph nodes. Since also in about forty bodies adhesions occurred at a distance from tuberculous lesions and even on the opposite side of the thorax, the idea suggests itself that the tuberculous virus may cause a pleuritis at a considerable distance from actual lesions.

In conclusion, from my study of tuberculosis at autopsy, I can not avoid the opinion that climatic and hygienic conditions in Panama are quite favorable for the arrest or cure of tuberculous infections, and my clinical experience also has supported this view.

SUMMARY

1. Tuberculous lesions were found in 74.2 per cent. of 287 consecutive autopsies.
2. A great majority of lesions were small focal ones and appeared to be healed or arrested.
3. Only twenty-one, or 7.3 per cent., of the 287 deaths were due to tuberculosis.
4. Pleural adhesions were present in 65 + per cent.
5. Of the pleural adhesions 54.5 per cent. was probably the minimum due to tuberculosis.
6. Adhesions occurred much more frequently when tuberculous lesions were on both sides of the thorax than when on one side only, and much more frequently also when the lungs (or the pleuræ) were involved than when the involvement was limited to the peribronchial lymph nodes.

My thanks are due to Col. W. C. Gorgas, chief sanitary officer, for permission to publish this paper.

When the fluid is allowed to enter the cranial chamber under a pressure in excess of venous pressure, venous engorgement will be apparent in the retinal veins, and soon a measurable elevation in the optic discs can be observed. If, by elevating the flask, the pressure is increased so as to nearly equal the normal arterial pressure there will result a marked engorgement and tortuosity of the veins with a high grade of swelling in the disc. Under these circumstances, if the optic nerve is exposed by a free opening of the orbit a marked distention of the vaginal sheath with the well-known ampulla-like dilatation of its distal end will be disclosed. If the fluid through which pressure is being made is colored the color rapidly makes its appearance under the sheath of the nerve.

In order to determine whether the retinal edema was a consequence of this fluid in the nerve-sheath under increased tension or whether it was due in part also to a stasis of the retinal veins, in certain experiments the nerve-sheath was ligated distal to the chiasm with sufficient pressure to obstruct the venous return without interrupting the circulation through the retinal arteries. Under these conditions, though the retinal veins became tortuous and engorged, no appreciable swelling took place in the disc. On the other hand, with removal of the ligature and the exertion of sufficient pressure on a portion of the dura exposed by a trephine opening over the hemisphere, the ampullated distention of the subvaginal space would quickly occur, and the disc promptly become edematous.

In brief, therefore, through the backing up of fluid under pressure—and it is indifferent whether this fluid be artificially introduced or be merely the normal fluid which has been crowded from the subarachnoid space into the vaginal sheath—a neuroretinal edema will occur, whereas venous stasis alone will not produce it.

These transient edemas are naturally difficult of histologic demonstration, inasmuch as the fluid is abstracted from the tissues in the early process of fixation. We have, however, been able, by a long continuation of pressure in an animal possessing a large subtemporal, healed, cranial defect, to reproduce the typical permanent lesion of a long-standing choked disc, with hemorrhages, round-celled infiltration and all, which was not only demonstrable with the ophthalmoscope, but which has later shown the usual histologic picture.

Animals may exhibit different changes in the discs, even under the same degree of fluid pressure: indeed, both discs of the same animal are seldom affected in like degree. It has been our experience, furthermore, that when choked disc has been experimentally induced in this way the edema first makes its appearance in the eye contralateral to the hemisphere over which the fluid is being introduced.

Our efforts to produce choked discs through the introduction of foreign bodies, with encroachment on the intracranial space after the manner of a tumor, have so far met with only a certain measure of success, doubtless owing to imperfect methods. Such a degree of swelling of the nerve-head as we have occasioned in this way has been much slower in making its appearance, has been less pronounced than when fluid was used, and rarely holds for any length of time. In these cases the disc in which swelling was first observed corresponds to the hemisphere in which, or over which, the foreign body had been introduced and thus was homolateral to the lesion.

We feel justified in the conclusion that a simple increase of intracranial pressure without any inflammatory or toxic reaction is capable of producing a typical choked disc.

CLINICAL OBSERVATIONS

Operative and Postoperative Edemas.—In the older methods employed for the removal of the Gasserian ganglion some considerable elevation of the temporal lobe, with resultant local cerebral compression, was necessary for a satisfactory exposure of this structure. In consequence of this temporary compression, a low grade of choked disc was not infrequently found after the operation in a considerable number of patients who were made the object of study a few years ago. In one patient there was a marked choking on the side of the operation, with retinal hemorrhages. The changes were often found immediately after the operation, and in a few cases lasted for several days before they disappeared completely. In no case was there any permanent damage either to the nerve or retina.

According to the method which we now use in approaching the ganglion we have failed to find any evidences of these changes, doubtless owing to the fact that with the present operative procedure but little elevation is needed in comparison with the earlier measures and because the pressure, such as it is, is continued for a comparatively short time. It is natural to suppose that the neuroretinal edema occurring in these patients corresponds with the condition induced experimentally by pressure on an area of exposed dura, the normal cerebrospinal fluid being crowded by the pressure into the adjoining optic sheath. Naturally the choking will not occur when there is a considerable escape of fluid during the course of the operation.

A postoperative choked disc has been seen in a number of cases when, after an exploratory osteoplastic craniotomy, there has been a subsequent extravasation of blood leading to an extradural clot. Also in cases of tumor extirpation, when there has been considerable cerebral contusion with resultant edema and swelling of the brain, the height of a pre-existing choked disc may be increased.

Choked Disc in the Newborn.—The fact has long been recorded that after difficult instrumental deliveries a choked disc, often with retinal hemorrhages, may be found in the newborn infant. This we have been able to verify. We have not only observed the condition in infants after prolonged and difficult labor, but also have ample proof that compression of the skull in supposedly uneventful deliveries is at times sufficient to elevate the discs to a height of from 5 to 6 D. In all infants in whom choked discs have been found, tense fontanelles have been the rule.

Cranial Injuries in the Adult.—It has been our good fortune to observe many examples of injury to the skull associated with edema of the papilla, and, indeed, it is the rule for a choked disc sooner or later to accompany at least all bursting (basal) fractures. The choking may appear early, a matter of a few hours, in case there has been extensive contusion or extravasation of blood, or it may appear late, a matter often of a few days, when the edema of concussion is at its height.

It consequently has been possible for us in many cases to study the eyegrounds before there was any evidence of swelling, and it has been interesting in these cases, since decompression has become a routine treatment for them, to compare the ophthalmoscopic

findings with the degree of tension disclosed at operation. Thus, no case in which choked disc was present failed to show increased intracranial pressure: cases in the absence of choked disc, with possibly one or two exceptions, invariably disclosed a brain and cerebrospinal fluid not under unusual tension.⁴ Many illustrative records might be cited—two will suffice.

CASE 1.—Forty hours after a basilar fracture of the skull a patient was brought to the hospital. During the next two days, despite the apparent improvement in his general condition, the choked discs, which were present on admission, gradually increased in height, and for this reason a decompressive exploration was deemed advisable. A large amount of bloody cerebrospinal fluid, holding numerous small clots, spurted from beneath the dura when the tense membrane was opened. A temporary subtemporal drain was placed with escape of fluid for a few days. The patient's choked disc quickly subsided and his recovery was rapid.

CASE 2.—A workman fell from a height on the back of his head. There was profound loss of consciousness with development of marked rigidity in the extremities. The discs were normal and there were no pressure phenomena. Nevertheless an exploratory decompression was performed, exposing dura and brain, which were not tense. The patient died after a few days, with symptoms resembling those of a decerebrate animal. Autopsy disclosed no lesion other than two small symmetrically placed pontine hemorrhages.

Meningitis.—Contrary to the statement handed on in many neurologic and ophthalmologic text-books, we have found that in uncomplicated meningitis choked disc is rare—a matter that speaks emphatically against the view of an inflammatory origin of the process. Others have made similar observations in regard to the infrequency of von Graefe's so-called descending neuritis.

When an internal obstructive hydrocephalus complicates the late stages of meningitis, however, choked disc is almost inevitable. We are inclined to regard its appearance as one of the most useful clinical signs of this complication.

Ventricular punctures have been performed in a number of these patients—oftentimes repeated punctures. On occasion the puncture has been made while the eyegrounds have been under continuous observation, and the subsidence of the vascular congestion, and, not infrequently of the swelling itself, is most striking.⁵ With reaccumulation of the fluid the original condition becomes restored.

Choked disc is rare in cases of pyogenic abscess, doubtless because brain is destroyed by the process rather than pressed on. Hence unless there is considerable local edema in consequence of the focus of suppuration there is not likely to be any considerable increase of tension. It is otherwise, however, with tuberculous abscesses, but their symptomatology so closely resembles that of tumors that they will be considered together under the latter heading.

Nephritis.—We are more and more inclined to the view of Bramwell, Russell and others that the headache, vomiting and so-called "albuminuric retinitis"—in other words, the cerebral pressure symptoms of renal disease—are due, in large part at least, to a cerebral edema. Histologic studies of the neuroretinal lesion in nephritis have furthermore served to strengthen the

opinion drawn from clinical observations that the lesion accompanying nephritis is merely a modified form of choked disc.

That a retinal picture typical of that characterizing renal disease may occur in association with tumors, particularly those below the tentorium, has long been recognized and has received the authoritative confirmation of Taylor, Gunn, Paton and de Schweinitz.

Eighteen of our 200 cases of tumor showed the typical so-called stellate figures of albuminuric retinitis. In twelve of them there was no clinical suspicion of any renal involvement, and, furthermore, relief of the intracranial pressure, through decompression, in a number of the remaining cases led to a disappearance from the urine of the suggestive renal elements. For example:

A young girl was under observation, owing to headaches and slight choking of the discs. Albumin and a few casts were present in the urine. This condition remained unchanged for a number of weeks; when a convulsion occurred, and it seemed inexpedient to postpone the contemplated decompression longer. At the operation a marked increase of cerebral tension was found; the choked discs rapidly subsided and the albumin and renal elements disappeared from the urine before the patient's departure from the hospital.

On the other hand, in not a few patients whom we have studied in the medical wards a postmortem examination has disclosed advanced renal disease, with a normal though possibly edematous cerebrum, whereas, clinically, definite choked discs had been present with none of the signs which are supposed to characterize nephritic retinitis.

In a number of patients with nephritis we have performed lumbar punctures while the eyegrounds were being observed. When pressure symptoms are present we have invariably found the fluid to be under increased tension, rising occasionally from 60 to 80 cm. or more in the manometer tube. Its withdrawal leads usually to a temporary amelioration in the patient's subjective symptoms and to an improved appearance in the eyegrounds. Unless the neuroretinal condition is far advanced in new tissue formation, a straightening of the vessels and a measurable lessening of the edema can sometimes be observed within a very short period. With the almost inevitable reaccumulation of fluid, the former appearances usually soon return. That this is not always the case, however, is evidenced by the two following histories:

CASE 1.—Two days after parturition, eclamptic convulsions with all the symptoms of cerebral compression developed in a young woman who had suffered for some years with chronic interstitial nephritis. The fundi showed the typical changes of "albuminuric retinitis." An excess of fluid was evacuated by lumbar puncture; the convulsions ceased, and in the course of a few hours her condition had greatly improved. In less than a week there was a marked change in the fundi. After three weeks not a trace of the "retinitis" could be found, and now, a year after the operation, she continues in good health and her eyes show nothing pathologic.

CASE 2.—In a patient with uremic symptoms who showed the typical, so-called "nephritic retinitis," a subtemporal decompression was performed. This disclosed a very tense dura, on opening which an abundance of fluid was evacuated. Our hope that the cranio-dural defect would obviate the return of the former degree of pressure was well grounded, for the patient's uremic symptoms entirely disappeared and there was a rapid subsidence of the extreme swelling of disc and retina, with a most striking change in the appearance of the fundi. The renal condition, of course, remained unaltered.⁶

4. It is true of these operative and traumatic cases, just as in cases of brain tumor, that the swelling involves the discs first on the nasal side and last on the temporal; whereas in clearing the process takes place in an inverse order, the temporal edge coming into view first, while the center lingers on the nasal side.

5. One of our earlier experiences, the sort was recorded in an article entitled "The Blood-pressure section of Acute Cerebral Compression," *Am. Jour. Med. Sc.*, June, 1903.

6. This matter of choked disc and albuminuric retinitis, with the detailed report of this latter case, has been made the subject of another communication (*Am. Jour. Med. Sc.*, October, 1905).

Cerebral Tumor.—In our large series of brain-tumor cases we have been fortunate enough to see a number of patients before any injection or edema of the discs has become apparent, and we have thus been privileged to observe the early stages of the so-called "neuroretinitis" while the patients were awaiting operation, as well as the prompt subsidence of the condition after decompression. Indeed, in doubtful cases (cerebral syphilis, embolism, etc.), the question of operation in the medical wards has come to hinge, not on the patient's subjective improvement or on the change in general symptoms so much as on whether or not there is an alteration for the better in the eyegrounds. It may be said that we have seen no appearances in the discs of these patients that were not manifest in the conditions, clinical or experimental, which we have already cited—in other words, no appearances peculiar to tumor.

We have been unable in our study of the eyegrounds to discover anything of value in determining the size or structure of a tumor. Small benign growths in some situations will, by a mechanical effect, increase the intracranial pressure more than large, malignant, infiltrating ones placed elsewhere. Further, as de Schweinitz has emphasized, the stage of the retinal process is no indication of the duration of the cerebral lesion, nor can we predict in a case of tumor in the absence of choked disc when this is likely to occur. We have seen a sudden choking take place in a patient with a cerebello-pontile tumor known to have been present with no retinal change for eight years; and of course it is a frequent experience to have the first suspicion of a brain tumor arise in consequence of the accidental discovery of a choked disc. The whole question resolves itself into the study of the character of the intracranial pressure and its effect on the cerebrospinal circulation, regardless of the histology, the situation, or the duration of the neoplasm.

A growth may increase the intracranial tension in such fashion as to cause a backing up of cerebrospinal fluid in the optic sheaths in two principal ways, namely, with or without the intermediation of an accompanying internal hydrocephalus.

A tumor so situated as to produce an obstructive filling of the ventricles will cause a general increase in tension, often of high degree and of rapid onset. Under these circumstances the extracerebral fluid in the sub-arachnoid spaces, particularly in the basal cisternæ, will be held everywhere at equally high tension and choked discs which are practically equal on the two sides may rapidly appear. This is more apt to be the case in subtentorial tumors, though an obstructive ventricular hydrops may occur with basal tumors anywhere, and even with tumors of the hemispheres.⁷

Growths about the cerebellum have long had a bad reputation so far as the production of choked disc and resultant blindness is concerned, but it must be recognized that certain tumors, like the endotheliomata of the cerebello-pontile angles, may exist for years with absent or insignificant pressure symptoms, until the flattening of the pons and medulla blocks the iter and leads to an acute ventricular overfilling. We have seen long-standing tumors of the hypophyseal region do the same thing, namely, ultimately, lead to a filling of the lateral ventricles through pressure and deformity of the third ventricle, so that a double choked disc may become

superimposed on the old atrophic nerve-heads. Still, it is the rule for tumors in this situation to cause an optic atrophy through direct pressure, without the intermediation of a choked disc.

Centrally located tumors would naturally be expected to increase pressure equally throughout the cranial chamber and cause an equal choking of the discs, and this usually is the case. Indeed, if all tumors exerted their pressure effects equally in all directions and at all distances, we believe that the two discs would always show practically equal changes.

Tumors which do not cause a general increase of intracranial tension through hydrocephalus are much more apt to lead to an unequal process in the two eyes. This is particularly true of growths in the hemispheres and of those which are situated, roughly speaking, in the neighborhood of the optic tract—temporal lobe tumors, for example, and those within a short radius of the insula. There is sufficient pressure discontinuity between the basilar arachnoid spaces on the two sides, through the interposition of the third ventricle and infundibulum to cause the fluid pressure in the optic sheath to be considerably greater on the side of the growth than on the opposite side.

The pressure effects of a growth, as is well known, diminish inversely with the distance from the growth, and it is easy to understand that subarachnoid fluid may be pent up in the neighborhood of the chiasm by a tumor of one hemisphere, so that the homolateral nerve can be affected more than the other. Still it must be remembered that tumors springing from one side may grow entirely away from their point of origin and strongly indent the opposite hemisphere—a matter which is particularly true of the frontal lobes, owing to the relatively feeble support of the falx in this situation. The ophthalmoscopic findings in cases of this character are of course misleading, and they indeed cast the chief doubt on the value of choked disc as a means of localization.

However this may be, in 70 per cent. of our cases the papilla on the side of the tumor was the one most involved; in 80 per cent. of the cases seen before choked discs made their appearance the first swelling ultimately occurred in the eye homolateral to the tumor; and in 72 per cent. the ultimate damage to the nerve was greatest on this side.

We have seen some patients in whom the opposite eye has shown the greater degree of swelling. This possibly can be attributed to anatomic peculiarities of the optic sheath, which may be a factor to be considered in some individuals; to the indentation of, or a possible area of cerebral edema of the hemisphere opposite to the growth; or, finally, to the fact that the patient's examination may have been made when the disc primarily most affected is declining in height. As a matter of fact, it is of greater value in determining the location of a tumor to estimate the damage already done to one or the other nerve than to depend simply on the existing height of a swollen disc. With this in view it is our custom to search for the new white connective-tissue changes in the disc and around the vessels, to look carefully for the signs of atrophy, to make a careful plot of the visual fields and to measure the central vision. These things are the best index of what has already taken place in the disc and may prove to be the best localizing (right or left) signs.

As has been pointed out, subtentorial tumors, owing to their situation and the resultant hydrocephalus,

7. In J. M. Martin's analysis (Lancet, 1897, ii, 53) of 601 tumors these of the corpora quadrigemina gave 100 per cent. of choked disc. We have had three of these cases not only showing choked discs but double blindness and deafness.

which first or last is almost inevitable, will often produce at some time in their course a greater swelling of the discs, and one more rapid in its onset, than tumors situated far forward. Only in exceptional cases has this failed to be the rule in our series. The average height of the discs in cases of cerebellar tumors was $5\frac{1}{2}$ D.; in tumors of the cerebral hemispheres $3\frac{1}{2}$ D. The difference is probably greater than would appear from these figures, since many of the patients with cerebellar lesions have been operated on during a period in which the discs were steadily gaining in height.

Tumors may continue to grow and still show a fluctuating degree of neuroretinal edema, often with complete temporary subsidence of the process, even without decompression. This can occur from a variety of causes. There may, for example, be periods of temporary relief to an obstructive hydrocephalus through the occasional escape of fluid. Then, spontaneous hemorrhages into the substance of a vascular tumor may cause a sudden rise of intracranial tension with a resulting elevation in the height of the discs, which subside again as the blood is absorbed. Further, cysts which possess a variable degree of tension not infrequently develop in degenerated areas of a tumor. Finally, an advancing growth may lead to a local cerebral edema in its immediate neighborhood, or indeed in a remote situation, with temporary increase of tension and a swelling of the discs which lessens as this edema passes away.

There is great variability in the length of time a choked disc may persist without leading to infiltration sufficient to produce degeneration with optic atrophy. It depends of course on the degree of severity of the process and this in turn on the degree of increased tension. In one of our patients a marked papillary edema, which had been known to be present for three and a half years, subsided in less than three weeks after a decompressive operation, leaving a central vision of 20/20 in each eye and only a slight constriction of the visual fields for form.

A fresh choking may occur on atrophic discs, whether the atrophy be primary or the consequence of a pre-existing choked disc which has disappeared. Marcus Gunn some years ago recorded an instance of this; Yamaguchi and de Schweinitz have recently called attention to a similar occurrence; and we have had opportunities of confirming these observations.

A young man was operated on for the removal of a large cerebral cyst, which presumably was a degenerated glioma. Atrophy of both optic nerves without swelling was present, doubtless a relic of the active stage of the growth some six years before. A large, postoperative, extradural extravasation formed, and the resulting increase in intracranial pressure led to an acute swelling of the discs, which subsided promptly after the evacuation of the clot.

These occasional postoperative extravasations have often given us information of great interest, and the examination of the eyegrounds has usually been the tell-tale of a process which demanded reopening of the wound.

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was operated on for a focal epilepsy without a fairly large, infiltrating, cortical glioma located. There had been no choked disc cerebral pressure, and on reflection of the dura, or brain was found. The patient recovered well course a few hours she n of the fundi rev an wound was imm ly ot, which was evac .

The surgical experience in the case of this latter patient confirms what Hughlings Jackson was among the first to point out, namely, that a choked disc need not accompany a tumor even of fairly large size. It serves, furthermore, to give the most reasonable explanation for the absence of pressure symptoms, on the ground that an infiltrating tumor need not increase the intracranial tension. We have met with a number of other examples of this same thing.

On the other hand, we believe that a certain low grade of choked disc is not infrequently overlooked. There is one type in particular which is detected with the greatest difficulty, namely, that in which both disc and retina are uniformly edematous and the structures remain clear. For example:

A patient was sent to us whose history and physical condition clearly indicated the presence of a growth in the central region of the right hemisphere. His eyes had been frequently examined by a capable ophthalmologist, who reported that there had never been any observable "retinitis" of either disc. We were rather inclined to believe that the nerves and retinae were not normal, but we could not be positive of this. A palliative exploration with decompression was performed, and in a few days the complete disappearance of an unsuspected edema from the retina, leaving prominent the discs, the swelling of which subsided more slowly, cleared up our uncertainties.

Thus, without decompression, incipient choked discs may be extremely hard to distinguish from simple hyperemia, and the greatest care must be used to avoid error.

On other occasions we have observed, while the process is in its incipency, this diffuse obscuration from swelling of both disc and retina, but as the nerve-head increases in height the retinal edema usually disappears. Conversely it has been seen to return as the swelling of the disc subsides. Thus, with a low grade of pressure or with an early process, edema of the retina may be more extensive than when there is a pronounced choking of the disc.

We find it difficult to reconcile these observations with the view that the low grade of retinal edema is characteristic of a true neuritis, for every link connecting the two processes can be made out. Thus, we have seen cases of so-called "descending neuritis" lose every supposed ophthalmoscopic characteristic of that condition and insensibly pass into choked disc; and conversely not a few choked discs have eventually shown the picture of descending neuritis. Though they are not common, we have seen typical choked discs in cases of meningitis, but only when the intracranial tension was found to be greatly elevated. After operation, despite the continuance of meningeal inflammation, the choked disc or, if you will, the descending neuritis, may entirely clear away.

Subdural hemorrhages from bursting fractures of the skull occasionally produce the picture of descending neuritis in one eye and of choked disc in its fellow, while removal of the extravasation may lead to a complete subsidence of both conditions. It hardly seems credible that one is a true neuritis and the other a choked disc, both caused by the same injury, appearing in the same individual and relieved by the same operation.

When choked disc is of high grade, periods of transient blindness may occur lasting from a few seconds to an hour or more. These periods of temporary amaurosis we find, in agreement with Leslie Paton, to have been most common in association with cerebellar

tumors. It is Oppenheim's conjecture that a distention of the third ventricle due to an obstructive ventricular hydrops may, by direct pressure, so affect the optic tracts near the chiasm as to cause the early amblyopia and blindness, and it is conceivable that such a process can account as well for these temporary losses of sight. One of our patients was able to induce the condition on assuming a certain posture.

A young married woman for some years had suffered from headache, homonymous hemianopsia and hemianesthesia, which were thought to be hysterical, until a double choked disc finally made its appearance. On sitting up and bending her head well over, her pupils would dilate *ad maximum* and she would slowly become blind. When in this condition, an ophthalmoscopic examination would reveal no appreciable change in the condition of either arteries, veins or degree of swelling. A combined exploration and decompression was performed, with amelioration of her subjective symptoms, disappearance of the choked disc and cessation of the attacks of blindness.

Hughlings Jackson was among the first to lay stress on the fact that central vision may be preserved in almost normal acuity until a late stage of "optic neuritis." Owing to this fact the tragedy of a sudden and unexpected total loss of vision is unfortunately not uncommon. We have, on a number of occasions, been persuaded to operate on patients after such an occurrence, in the hope that some vision might be restored. This has never occurred even though two of these patients were decompressed within a day or two after the blindness set in, and though in one of them a cerebellopontile tumor was successfully removed. Indeed, as has been the experience with others, we have seen cases in which a palliative operation has been deferred so long that blindness from complete atrophy followed the operation as the choked disc slowly subsided.

The study of the visual fields will usually give a much better index of the extent of implication of the nerve than will any tests for acuity, and there are certain features of the color fields in particular which we regard as characteristic of an early stage of implication of the nerve—a matter which must be deferred for another occasion.

HISTOLOGIC AND SURGICAL NOTES

The histologic alterations in the nerve and retina we have found to vary with the extent and duration of pressure and to bear little if any other relation to the character of the associated disease or injury. The greater the swelling and the more enduring the process the more marked the histologic changes have been.

The pathologic findings usually varied from a slight swelling of the disc with overfilling of the veins to great dilation of the subvagal spaces around the nerve and to complete atrophy and marked degenerative changes in the retina. The microscopic picture corresponds with the gross pathologic changes, consisting in the main of small and large hemorrhages in the nerve-head and retina, cystic and colloid changes, hyaline thrombi, marked separation and tortuosity of the nerve bundles, proliferative changes in the vessels, perivasculitis, round-celled infiltration, fatty deposits in areas where exudates were present, cytoid masses, retinal separation and more or less complete disintegration of the fibers of nerve and retina.

Through the courtesy of Dr. F. H. Verhoeff of Boston we have had the privilege of studying and comparing with him sections of the optic nerves and retinæ taken from a number of undoubted cases of brain tumor and of nephritis in his and our own collections. The his-

tologic changes varied but little in the two conditions, and the essential features of each left little doubt as to their close histologic connection. It seems very probable that the two lesions represent only modified forms of a neuroretinal disturbance originating from the same cause. Sclerotic changes are present in the vessels in nephritis more often than in tumor; this, however, is another sign of the primary disease, and, so far as the retinitis is concerned, is a mere coincidence. It possibly gives the retina less power to resist changes resulting from edema and modifies the picture seen ophthalmoscopically. Thus, since the presence of a stellate figure has been recorded in our series in nearly as many cases of undoubted brain tumor as of undoubted nephritis, we naturally incline to the view advanced by others that it can not be regarded as typifying renal disease exclusively.

Our experience encourages us to advocate, not only in many cases of cerebral tumors but in a number of other conditions, an early decompression. Needless to say, a cranial operation is regarded by many people, both lay and professional, as a serious performance—and perhaps justly so. It is necessary, therefore, that an operation proposed for the relief of the retinal lesion in its incipency, at a time when it is difficult to make the patient appreciate the serious nature of his trouble, should be one practically without risk, easy of performance, one which requires the shortest possible hospital residence and leaves the least possible external evidence of its having been carried out. We know of no operation other than the subtemporal decompression described by one of us which in so large measure meets these requirements.

Permanent alterations in the fields and loss of visual acuity invariably take place if choked discs are allowed to run their course, and in a very large proportion of cases complete blindness supervenes before death terminates the story, and indeed only too often in cases in which the primary lesion does not lead to a fatality.

Any permanent alteration in the nerve will cause a corresponding change in sight. This often holds true even if the process is interrupted by an operation, but the important point is that the longer the changes persist the greater will be the loss in vision. In a number of patients the choked discs have subsided after operation with complete restoration of normal visual acuity; in a larger number the condition has been checked without further advance, and the sight has remained as before the operation. Unfortunately we have seen a few patients in whom, in spite of the decompression, vision has become worse, and one, indeed, in whom it was lost. These latter patients all had extensive exudates and marked proliferation of connective tissue in the disc and retina, and the further loss of sight was due solely to the contraction of these masses with resultant degeneration of the vulnerable nerve fibers. These cases offer the strongest argument for early decompression; for if the choking has been allowed to advance to this high degree, unavoidable contracture of the new tissue may shut down on the nerve fibers and serve to produce atrophy regardless of any intervention.⁸

8. The results of our surgical measures, so far as the changes in the eyegrounds are concerned, do not differ greatly from those given by Leslie Paton in his excellent and concise review of a series of cases observed by himself and Marcus Gunn in the National Hospital, Queen Square (Optic Neuritis in Cerebral Tumors and its Subsidence after Operation, *Tr. Ophth. Soc. U. Kingdom*, 1905, xxv, 129). Our series of cases has been considerably larger than that which forms the basis of his report, and

If we are correct in thinking that increased intracranial pressure—a condition which in its less severe degrees can be relieved by operation—is the cause of choked disc, and with the knowledge that choked disc frequently leads to blindness, the proper course to pursue must seem clear to every one. We do not wish to seem radical in this, for we zealously endeavor to give medicinal therapy and cautious delay their just dues. Still, in many cases it is often the safer course to decompress first and push the drug treatment afterward. One method promises sight, the other possible blindness, and the iodids are much better borne when the patient is free from headache and nausea.

Further, in undoubted tumor cases it is often unwise to wait until the growth can be located before operating. The primary effort should be made to alleviate the patient's physical discomforts and assure the preservation of vision; then one may delay with lessened anxiety. We have had, during the past five years, many patients with unlocalizable tumors, who, as the result of an early decompression, are perfectly comfortable, with either normal sight or vision amply sufficient to allow them to continue with their livelihood. A number of these patients have returned after variable periods with an onset of focal symptoms which have enabled us to determine the situation of the growth; in a few of them the lesion has proved to be accessible and has been successfully removed.

In these cases, owing to the situation of the lesion, it is not crowded into Schwabe's sheath.

We believe, since choked disc, contrary to many authorities, is rare in meningitis and equally so in abscess, unless there is an obstructive hydrocephalus leading to greatly increased pressure, that meningeal inflammation of itself must be looked on as an unlikely source of the lesion. Furthermore, the process is frequently seen after cranial fractures, apoplexies, and not uncommonly after simple operations when the question of an infection can safely be ruled out.

We believe, finally, since there is an almost uniform subsidence of what we consider to be choked disc (barring certain cases complicated by obstructive hydrocephalus) after decompressive operations, whether conducted for the pressure of tumor, cerebral edemas of one sort or another (traumatic, nephritic or vascular), infections, or intracranial hemorrhages, that a mechanical rather than a toxic process must play the chief rôle in the causation of this well-recognized lesion.

ABSTRACT OF DISCUSSION*

ON PAPERS BY DRS. SPILLER[†] AND CUSHING AND BORDLEY

DR. H. V. WÜDEMANN, Milwaukee: My experience with the procedure of trephining for this condition is confined to three cases, and I speak mainly from a theoretical standpoint.

As the causes of optic neuritis are so varied, and in the main are general diseases, as syphilis, nephritis, the rheumatic diseases, the grave anemias and diseases of the vascular system, and not one of them limited in a surgical sense to optic

pressure is established, medical treatment being instituted afterward

Horsley advises opening the skull and dura mater in optic neuritis of anemic or toxic origin. He places considerable responsibility on the medical adviser if blindness results, after the process has been diagnosed, due to failure to arrest it by the simple palliative remedy of opening the dura. The ophthalmoscopic appearance of the disc must be carefully interpreted before the degree of vision after operation is predicted. The greater the secondary changes in the disc and retina as shown by the yellowish white stippling patches of exudation or opal white atrophic changes, especially if associated with muscular rigidity, the more will vision be impaired.

Babinski and Chailous say that the therapeutic value of lumbar puncture in ocular pathology has not been thoroughly studied. A few authors only have incidentally noted its favorable effect in certain affections of the optic nerve. According to the observations of Duval, papillary edema, as well as other symptoms of the cerebral compression, may disappear after evacuation of the cerebrospinal fluid, but the result is far from being constant. Quincke joined a vertical glass tube to the needle used to make the puncture to enable him to measure the pressure of the cerebrospinal fluid and establish the relation between intracranial hypertension and the symptoms that are attributed to it. In this way, in case of "choked disc," lumbar puncture may aid the diagnosis, and it may be repeated if it causes any improvement.

The relief, sometimes so immediate, of visual trouble following lumbar puncture, favors the theory of Dupuy Dutemps, who asserts that papillary edema is due to compression of the central vein in its passage through the dural sheath.

Babinski and Chailous conclude that lumbar puncture should be considered a therapeutic measure in cases of a papillary edema due to traumatism or inflammation while in intracranial tumors it can be only palliative, that it is well to repeat the punctures as often as may seem necessary to avoid the effects of compression, particularly atrophy of the optic nerve.

Lumbar puncture appears to be particularly effective in the clinical type described by Quincke under the name of "serous meningitis." In many cases of meningeal hemorrhage, particularly the traumatic, the method may be indicated when there is no urgent necessity to evacuate the blood. Palliative results are obtained in hydrocephalus. In optic neuritis from cerebral tumor prudence should be used in treatment by lumbar puncture, as in some cases sudden death has followed it, and in others there has been an aggravation of the nervous symptoms, particularly of headache and vomiting. In the uremia of Bright's disease there may be real relief, though only of symptoms. In labyrinthine diseases of the ear lumbar puncture diminishes the vertigo and tinnitus and even the deafness.

In all three cases the effect is obtained by diminution of the tension produced by the excess of cerebrospinal fluid. There is a very reliable clinical sign of this hypertension in optic neuritis of stasis, and the diagnostic and therapeutic value of lumbar puncture in optic neuritis has attracted the attention of neurologists and ophthalmologists.

DR CHARLES H. FRAZIER, Philadelphia. I shall base my remarks chiefly on an experience with between fifty and sixty decompressive operations. There is no therapeutic measure, physical, medicinal or surgical, which gives greater relief to so apparently hopeless and intensely suffering a class or group of patients as the decompressive operation. This operation should include among its indications traumatism, perhaps epilepsy, meningitis, acute and chronic, with hydrocephalus. As for tumors we should not be content with purposeful decompression except in those cases in which we have assured ourselves that the tumor is inoperable, inoperable signifying either that the tumor can not be localized or can not be removed. The ease with which the simple decompressive operation can be performed and the immediate relief it affords, tempt surgeons and neurologists to be content with palliation. If the habit becomes prevalent, many operable tumors will be overlooked, and the percentage of operable growths will not increase as fast as it should.

The influence of decompression on beginning or fully established optic neuritis is naturally uppermost in the minds of the members of the ophthalmologic section. With but few exceptions the results in our work in the University Hospital have been good. The prognosis seems to be better in those cases in which the choked disc subsides comparatively slowly. In fact, we have never observed as rapid a disappearance of the choked disc as has been recorded by others.

Surgeons have been accustomed to relieve intracranial tension due to the result of traumatism, and particularly fractures and hemorrhage. There should be a limited number of cases of cerebral edema, resulting from cerebral contusion, in which decompression might relieve intracranial tension sufficiently to tide the patient over; but certain factors may render operation useless, and especially the rapid and diffuse character of the process. Tumors are more localized, grow more slowly, and do not, as a rule, involve the medullary centers. The edema of contusion is more or less widespread, and even though decompression is established, the process continues and eventually through direct or indirect involvement of the circulation of the vital centers causes death.

In the fifty or more operations which we have had, excluding those for the relief of traumatic conditions, we have lost one patient in twenty eight of those in whom the lesion was in the cerebrum. In this case the autopsy proved that the patient had multiple sarcomata, involving the medulla and pons as well as the cerebrum. Often we did more than a simple decompressive operation. In more than half the cases this was preceded by an exploratory operation which, of course, increased the operative risks. In 25 operations for lesions of the cerebellum, we have had 6 deaths, 1 from pneumonia, 1 a typical cerebellar death, and 4 from shock. In the first 8 of the series there were 3 deaths, and in the last 14 only 3 deaths.

As to the general effect of the operation, 70 per cent of the patients may be said to be considerably relieved, and 10 per cent have been entirely relieved of the symptoms for the relief of which the operation was performed.

As to the effect on individual symptoms, we find in our histories that as to choked disc only three are recorded as uninfluenced at the time the patients were discharged from the hospital, and some of these already had optic atrophy. As to headache, two are recorded as uninfluenced by the operation; as to nausea and vomiting one, and as to vertigo one. Some of those cases which were referred to as being uninfluenced at the time the patients were discharged, we know from subsequent observations, have improved. I am referring now particularly to the choked disc.

As to the time in which operation should be performed, I believe that in an increasing optic neuritis we should not wait for the development of localizing symptoms or other signs of brain tumor or intracranial lesion. I believe also that we should not hesitate to operate in cases which are apparently hopeless, the patients being in a grave condition at the time they are brought to the surgeon.

In one case, particularly, in which I recall having operated during the past winter, the patient was almost unconscious, delirious for a number of days, and had violent headache in addition to optic neuritis; the situation seemed hopeless. A rapid decompression, however, was followed by almost as rapid a restoration to consciousness and the subsidence of all symptoms except an aphasia, which is gradually disappearing.

DR G. E. DE SCHWEINITZ, Philadelphia. I endorse and that has been said on the value of decompressing operations for choked disc and join in all the protests made against unreasonable delay in performing these operations. I would say a word, first, in regard to the relation of the refraction of the eye to the development of choked disc, or, to use another and perhaps a better term, "brain tumor neuritis," or Mr. Marcus Gunn's recently delivered term, "brain tumor papillitis." All those who have had the opportunity of observing the effect of the

*Since these remarks were made the last volume of Mr. J. Herbert Parsons' "Pathology of the Eye" has appeared. In this he urges the adoption of the term "papilledema" as a substitute for the word "choked disc," that is, the *Stauungspapille* of the Germans.—G. E. DLS

relief of intracranial tension on engorgement of the nerve-head must readily agree that any theory which omits this element is not worthy of serious consideration. Not only is the important relationship of increased intracranial tension to the development of choked disc proved by recent work in brain surgery, but it has received strong experimental proof, notably from Merz in 1901: and his work is confirmed by the researches of Drs. Cushing and Bordley. Therefore, it is difficult to be divorced from the term "choked disc," which is so expressive. It is a well-known fact that so-called brain-tumor papillitis, or choked disc, develops either slowly or not at all in myopic eyes. This, as Mr. Marcus Gunn points out, in all probability depends on the difference in the termination of the optic nerve sheaths in the sclerotic. In hyperopia the termination is more abrupt and in a more conical form than in myopia, in which the sheath spreads itself out more gradually into the sclera, and therefore allows an easier filtration of the fluid which is the cause of the edema. Be this as it may, in the examination of all eyes in the subjects of suspected increased intracranial tension from any cause there should be a full consideration of the refraction of the eye.

In making record of a choked disc, or tumor papillitis, there should be a definite statement, not merely of its height, but of its height above the level of the eyeground. Doubtless this is always perfectly clear to the observer, but it has not always been made clear in the records. This is a point of some importance in noting the results of operative interference on the height of the swelling. Take the case of a patient in Dr. Frazier's ward: Although the surface of the disc is $+5$ D., since the trephining there is little or no swelling, or, more accurately, edema elevation, because the patient has a hyperopia of 5 D. at the macula, and the original height of the disc was 3 D. above that level.

It is desirable to make record of the corrected vision of the patient, both before and after operation. Unfortunately, sometimes the acuteness of vision has apparently been recorded with the aid of the patient's correcting glasses, but later records of vision have been made without this aid, or sometimes the procedure has been exactly the reverse. I could give a number of examples showing how failure to note the refraction, both before and after operation, has introduced inaccuracies in the ultimate records of the visual results.

It has been my own experience that the subsidence of choked disc after decompressing trephining is not a very rapid one in many instances, although there have been some notable exceptions, one of which I believe has been reported in the Section on Nervous and Mental Diseases by Dr. Sinkler during this meeting. It seems to me that there should be a sharp distinction between the primary subsidence of the engorgement of the retinal vessels, the size of which sometimes markedly diminishes in the first twenty-four or thirty-six hours after trephining, and the subsidence of the height of the edematous disc, which is usually apparent at a later period. This point, I believe, has been made by von Kruegener in his recent article. My own experience has been that the first decided change in the engorged nerve-head is usually about the seventh day (certain exceptions have been referred to), and from then on the subsidence is quite rapid, so that most of the edema disappears by the end of the fourth or fifth week. This experience agrees with that of Mr. Leslie Paton, recorded in his recent admirable papers on this subject. Moreover, it has seemed to me that the ultimate visual results were better if there was a comparatively slow subsidence of the edema than if this disappeared very rapidly.

Optically, the prognosis as to sight is better the earlier operation is performed. If operation can be performed at the first three stages of tumor papillitis (with all of us are familiar), the prognosis *quoad visum* is direct favorable. If, however, the operation must be delayed to the fourth or fifth stage of choked disc, the prognosis is much less favorable, and, indeed, if it is much delayed, the growth of little service in restoring vision. It would, however, it should be remembered that his vision always returns immediately after the operation, but sometimes it is necessary to wait for a considerable period of time, even five or six weeks, before the best results are attained. Therefore, if possible, the surgeon should always operate during the first, second or third stage of tumor neuritis, but should not hesitate to operate, no matter what the stage is, not only for the relief of intracranial pressure, but for the sake of good visual result occasionally possible, even in apparently most unfavorable cases.

A difficult differential diagnosis is between beginning tumor neuritis and the so-called spurious optic neuritis not uncommonly seen in hyperopic eyes. I suspect that in some cases of reported engorgement edema of the papilla the observer may have been deceived by the presence of a hyperopic neuritis which he mistook for a beginning choked disc due to increased intracranial tension.

Occasionally there is rapid loss of sight after trephining, when one would expect just the contrary result. In two notable instances, after perfectly correct technical operations, both of them on cerebellar tumors, I have seen rapid blindness follow in spite of the prompt relief of intracranial tension. It has seemed to me that a possible explanation of some of these cases was great loss of blood at the time of the operation. The hemorrhage may have caused some change in the ganglion cells of the retina, exactly as such changes may be produced by free loss of blood after hemorrhage from the stomach or bowels. If so, the mechanism of blindness under these circumstances is the same as that which occurs in quinine, methyl-alcohol poisoning and other toxins, as has been so well shown in the researches of Ward Holden and others. I know that there are other explanations of this blindness.

Dr. PETER BASSOE, Chicago (presenting a patient): This patient, a clergyman, 42 years of age, in the fall of 1904 developed symptoms of brain tumor, severe headache, mostly in the morning, associated with vomiting and dizziness, diminution of hearing on the left side, slight impairment of vision and a tendency to fall to the left in walking. I saw him first in November, 1906, and then he presented the following symptoms: Staggering gait, tendency to fall to the left, slight left-sided ataxia, diplopia due to paresis of the left external rectus, nystagmus, which was coarse and slow in looking to the left, fine and rapid in looking to the right; bilateral optic neuritis, very slight on the right side, but marked on the left side, the swelling as measured by Dr. Wilder being 3.5 diopters. The vision in the left eye was 20/30, in the right eye 20/20. There was total nerve deafness on the left side with no evidence of middle ear disease past or present. A diagnosis of left-sided cerebellar tumor was made and operation advised. The operation was performed by Dr. Arthur Dean Bevan, Nov. 22, 1906. A suboccipital cranial resection was made and a tumor was felt in the left lobe of the cerebellum half an inch below the surface. Just how large it was and whether infiltrating or not could not be easily determined. The patient took the anesthetic very badly, and removal of the tumor was not attempted at that time. The dura was not sutured and the bone not replaced, so as to allow a hernia to form. It was not known at that time whether this operation was to be the first step in removal or a merely palliative operation. Three hours later, as soon as the patient came out of the anesthetic, I examined his eyegrounds and I am certain that there was a distinct change, as I then for the first time could see the outline of the left disc. Unfortunately, he was not examined by an ophthalmologist until three days later. Then Dr. Wilder noted that the disc outlines were clearer, but the swelling remained the same, so the change observed by me must have been chiefly in the amount of blood in the veins. On December 13, nearly three weeks after the operation, Dr. E. V. L. Brown measured the highest point of the disc to be a little less than two diopters; so there had been a considerable recession in the course of the three weeks. The left sided ataxia decidedly increased after the operation. On December 14 a second operation was made and the tumor removed. It was a cystic glioma of the size of a walnut and shelled out very easily. Since then the patient has made slow but steady progress. The vision was measured a couple of times after the operation and in the left eye one measured 20/40, once 20/30, and is now 20/40; the right eye each time

20/20. The ataxia has gradually diminished. The patient returned to his work, which he formerly had to discontinue on account of severe headaches, and during the past year he has been able to preach twice every Sunday. The severe headaches have entirely disappeared. The chief trouble now is the ataxia on the left side, which I consider to be due to the cerebellar hernia, which can be readily felt. Dr. Brown yesterday examined the patient's eyegrounds and finds that the left disc is best seen with a +1 lens. From what I understand, there is now no sign of any atrophy in the disc, and an abundance of small vessels can be seen. The left external rectus paresis, the left nerve deafness and the nystagmus still exist.

DR. CHARLES K. MILLS, Philadelphia: Trephining for cerebral symptoms dates far back even of the history of modern localization and cranial surgery. During my experience of twenty-five or thirty years, in not a few instances palliative operations were suggested for symptoms, like headache. I recall Dr. Weir in this connection. With regard to what are now called decompressive operations for the relief of optic neuritis, headache, vertigo and nausea, our recent experience, I think, dates distinctly to 1901, when at the Philadelphia Neurological Society I presented a paper on brain tumors, especially with reference to the parietal and prefrontal lobes, followed by a paper by Dr. de Schweinitz on optic neuritis. This was followed by the suggestion of trephining for the relief of optic neuritis by Dr. Spiller, who asked Dr. de Schweinitz whether he considered it justifiable to trephine when choked disc and certain symptoms suggesting brain tumor existed, although the growth could not be localized; that is, whether he considered it justifiable to trephine in the hope of preserving vision and modifying some of the symptoms of brain tumor. In some cases the mere opening of the skull seemed to have been of benefit. An account of this meeting and the discussion is to be found in the *Journal of Nervous and Mental Disease* for May, 1901. Since that time we have had an increasing number of cases in which both radical and palliative operations have been performed.

If optic neuritis is present and increasing, there should be no dallying with sodium iodid or potassium iodid and mercury, no waiting for the development of further symptoms, in many cases no waiting even for focal symptoms, so important is it that these operations should be done promptly.

The rule which we follow at the University of Pennsylvania is, whenever there are any focal indications, however slight, to make the decompressive or palliative operation in a region that would allow of a possible radical operation. It makes some difference, perhaps, but not very much, as to the part of the skull which opened. Over the right temporal lobe or the right prefrontal lobe are favorable positions. We have a habit at the University of Pennsylvania of working in collaboration—Dr. Spiller, Dr. Frazier, Dr. de Schweinitz and others—and in every case in which we have a tumor with optic neuritis we agree on operation as quickly as possible.

DR. CHARLES E. BEEYER, London, Eng.: When I first began to study neurology the theory held was that neuritis was caused purely mechanically; the choked disc idea was the theory that was advocated; then later on some papers were read, I think at the meeting of the Ophthalmological Society in London, which argued that it was rather due to descending changes in the optic nerve; but I have always felt that the old theory was probably the correct one, and that the cause of the neuritis was really purely mechanical. I was, therefore, greatly interested to learn that Dr. Cushing and Dr. Bordley had come to the conclusion from the experiments that the neuritis is really mechanical.

How soon after the injection of the fluid in dogs do symptoms occur in the optic disc? Is it a question of hours or of days? I understood that this injection of paraffin did not produce the choked disc so easily as injection of fluids. I suppose that the reason of this is that the brain becomes used to, and accommodates itself to pressure, and, therefore, the effects are not so marked.

It has been a mooted question, especially in England, whether the optic neuritis occurs in the eye on the same side as the tumor or on the opposite side. Sir Victor Horsley

holds that the neuritis occurs first of all, or is more intense, on the side of the tumor; but in a paper by Leslie Paton, read at the Ophthalmological Society of London recently, he comes to the conclusion that one can not lay much stress on that. My own point of view is that the question of on which side the tumor occurs on is of least importance. For instance, if all the symptoms pointed, say to the left side and the neuritis was more marked on the right side, I should disregard it as a localizing symptom. In a percentage of cases it is more frequently, I think, on the side of the tumor; but not so with sufficient frequency to be useful in the question of diagnosis.

In cerebellar tumor I agree that the neuritis is more marked than in tumor situated further forward; in some lectures before the Medical Society of London I had the opportunity of bringing together three or four cases of tumors in the parietal region, and the extraordinary point there was that the neuritis developed very late. In one of these cases a man had symptoms of a tumor for over a year with hemianopsia and local fits, before optic neuritis developed, whereas in cerebellar tumor optic neuritis develops earlier and is more intense.

In a case of optic neuritis with no other symptoms it is difficult to say whether one ought to operate or not. I am inclined to wait in those cases, because one sometimes does find optic neuritis even in cases of anemia, and then it would be a great mistake to operate. But if the patient has agonizing headache and vomiting and optic neuritis, I think the sooner one operates the better, and one should not wait for localizing symptoms.

I have seen a case of loss of sight after the operation. Before the operation the sight was fairly good and no evidence of any optic atrophy was present; but, of course, intense optic neuritis, as was shown by Jackson some years ago, is perfectly compatible with good sight. It was formerly supposed to be impossible, but it is now recognized that intense optic neuritis can exist without affecting vision. In this case after operation the vision rapidly deteriorated, the patient became completely blind, so that after decompression the vision became worse, instead of improving.

I understood Dr. Spiller to say that in cases of cerebellar tumor occurring in the ponto-cerebellar angle he would prefer decompression to operation. I should not quite agree with that. I think that in those cases, as already shown by Dr. Bassoe's case, one can operate and remove the tumors.

Lumbar puncture has no effect on optic neuritis, so far as I have seen. When the patient is comatose, respiration has ceased, but the heart has not stopped beating, I think we ought to operate, because, as Sir Victor Horsley has shown in the case of gunshot wound experiments, when the intracranial pressure is increased the respiration fails before the action of the heart does; and I have seen cases in which the respiration had failed in cerebral tumors and on operating and relieving the pressure, the patient has recovered consciousness.

DR. HARVEY CUSHING, Baltimore: We have frequently seen a decided subsidence of choked disc, within forty-eight hours, and in not a few cases soon after the operation. Of course, the rapidity of subsidence depends entirely on two things: 1, the character and success of the decompression, and, 2, the stage of the process, since in a long-standing edema which has led to infiltration the swelling can hardly be expected to subside as rapidly as in the cases in which there is little more than edema alone. An increase of the neuroretinal edema, which Dr. Spiller has seen in a few cases after trephining, is not improbably due to the increase of cerebral tension due to traumatic edema. We do not entirely agree with him on the question of decompression versus extirpation for lesions in the posterior cranial fossa, for a number of our most successful cases of tumor extirpation have been those in which the lesion was subtentorial. The excellent result in the patient with the cerebello-pontile tumor presented a few moments ago by Dr. Bassoe is an illustration of what may be expected in a large percentage of properly conducted operations in this situation. I wish to warn against promiscuous lumbar puncture in cases of brain tumor, particularly those situated under the tentorium, and also to express an opinion

as to the uselessness of ventricular puncture in tumor cases except as a diagnostic measure.

Marcus Gunn's views that papillitis is associated chiefly with hypermetropic eyes and is relatively rare in myopia does not entirely correspond with our own experience. We have had no case of myopia in which there has been demonstrable increase of tension without choking of the discs and have had two cases of hypermetropia with tumors of the hemisphere in which no choking occurred.

Dr. Beevor has asked how soon after injection we have seen a choked disc appear in our experiments. It is a matter of moments rather than of hours or days, and by "choking" we do not mean necessarily merely the signs of injection with venous stasis, but an actual swelling of the disc of three or four or more diopters. In a patient in the Johns Hopkins Hospital we have had, furthermore, a clinical illustration of the rapidity with which a choked disc may appear. An operation had been deferred owing to the absence of a choked disc, when there occurred a sudden loss of consciousness with swelling of the disc up to 7 D. in the course of a few hours. Death followed, and at autopsy a large hemorrhage was found in a glioma of the hemisphere.

I can not agree that it is immaterial where a decompression be done, and have given elsewhere reasons for regarding a subtemporal route as preferable to Saenger's parietal exposure. It is often dangerous to decompress directly over the situation of a tumor, for the dislocation which occurs in consequence of protrusion will not infrequently lead to a rupture of blood vessels entering a vascular growth with marked augmentation of the degree of pressure. I regard as an important measure, the primary subtemporal decompression in a patient who actually has a localizable tumor and one which may possibly be removable; for when patients are in a more or less critical condition, emaciated, with headaches, failing vision, etc., even though the case may be looked on as a favorable one for ultimate possible tumor extirpation, a preliminary decompression, which is the more simple measure, is often a helpful thing in so relieving the general physical condition that the more serious subsequent operation for extirpation can be done much more safely.

A still more important matter which Dr. Bordley and I have tried to bring out in our paper is the prompt decompression in cases of intracranial growth when the lesion is not localizable, for, as all those who have taken part in this discussion have said, the preservation of the eyesight is a matter of chief importance, and with a suitable decompression the tumor in certain cases, after months or perhaps years, may through gradual increase in its size, finally give evidence of its location, and, on exposure, may prove to be removable.

I hope that Dr. de Schweinitz will not give up the term "choked disc," at least in exchange for the term "tumor neuritis." It possibly is only a quibble of nomenclature, but I think that we ought to have some one term which will describe all grades of a condition which we recognize to be one, rather than to attempt to distinguish, as did von Graefe, the two stages, namely, those before and after marked swelling. Believing as we do, that the inflammatory condition is entirely a secondary process, we think that the term "neuritis" and "papillitis" are misleading and that the term which lays stress on the primary factor, namely, edema, is the proper one.

DR. WILLIAM G. SPILLER, Philadelphia: At the beginning of the winter I asked Dr. Sweet to have one of the students of the third year class of the University of Pennsylvania undertake some experiments on decompressive operations, and a certain amount of swelling of the disc by the introduction of foreign bodies under the dura in dogs was produced. Dr. Shumway made the examinations of the eyes. We were impressed by the amount of endurance exhibited by the dog under pressure of a considerable degree. A large piece of bone in many cases failed to produce choked disc or neuritis; and in other cases produced it only for a short time. These experiments will be reported later. I am convinced that tumor of the motor region—and probably the same is true of tumor of the parietal lobe—often causes choking of the disc, only late. I do not expect in tumor of the motor region of the

cortex to find optic neuritis until the tumor has grown to considerable size.

I am somewhat in doubt as to the propriety of decompressive operation when the patient is almost dead. It is probable that it will do no good, and the surgeon may be subjected to unfair and serious criticism after an unfavorable result. We do not, as a rule, operate under such circumstances at the University Hospital.

A STUDY OF THE RESPIRATORY SIGNS OF CHOREA MINOR*

WILLIAM W. GRAVES, M.D.

ST. LOUIS

St. Vitus' dance, Sydenham's chorea, chorea minor, is a distinct clinical entity and while the specific organism or toxic agent has not been definitely isolated, the work in this direction and the natural history of the disease has been and is such as to warrant the deduction now generally admitted, that it is a disease of bacterial or toxic origin. Clinically, chorea minor may be readily differentiated from other conditions resembling it but the differentiation is not always made and hence other conditions are often erroneously diagnosed chorea. This is notably true of the tic conditions. Again the usually observed motor manifestations of chorea may be and frequently are so slight that the true nature of the trouble remains unrecognized. The reason for such errors in diagnosis and for the non-recognition of the disease in its milder forms is to be found in the habit of basing the diagnosis on the presence of abnormal movements about the head and extremities which are usually so prominent in this disease.

"Never found a diagnosis in any disease or condition on the presence of a single sign or symptom," is a working axiom never to be forgotten in diagnosis. There are to-day no pathognomonic signs and symptoms. We are able to recognize prominent signs and symptoms in every disease, but they are always associated with other signs and symptoms if we will but search for them and our diagnosis in any case is most secure when founded on the greatest number of these. No one should be content to diagnose measles by the rash; a brain tumor by an optic neuritis; typhoid fever by the rose spots or tabes dorsalis by the presence of ataxia. Neither should he be content to diagnose chorea minor by the presence of abnormal movements. Abnormal movements about the head and extremities are usually prominent signs of chorea minor but they are not pathognomonic of the disease and they may be so slight as to be overlooked. In chorea minor, the abnormal movements have certain characteristics and when they possess these, we call them choreic or choreiform movements and while they are not pathognomonic of the disease when we really recognize them as such in conjunction with other symptoms just as characteristic, the diagnosis of chorea minor is readily made.

It will help us in the study of the chief respiratory signs of chorea if we consider the characteristics of the true choreic movements. Choreic movements in chorea minor are never confined to one part of the body throughout the disease. they may be one-sided in the beginning but they usually become general; they are never confined to synergically associated muscle groups, they are indefinite, vary in intensity and frequently

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* From the Neurological Department of the St. Louis University School of Medicine.

occur in individual muscles; they are involuntary, spontaneous, purposeless movements; they are never imitative nor can they be imitated; they are not materially lessened, but are usually increased, by any voluntary effort to control them; they are increased in emotional states, exaggerated when the patient is in the presence of others and less when he is alone or at rest; any voluntary effort exaggerates the choreic movements and voluntary, purposeful movements usually show a variable degree of incoordination and abnormal associated movements are always present.

A study of the abnormal movements of the muscles of the face, tongue and extremities in a moderately developed case of chorea minor will show them to have the foregoing characteristics. Add to these the disturbance in general nutrition, pallor, anemia, loss in body weight; usually the slight though constant elevation in temperature, at least in the early stages; the careless, sluggish, variable attitudes; the vacant, sullen or stupid expression; the morose, depressed or irritable disposition; the flagging attention; the variable heart murmur and we have a clinical picture not to be mistaken for any other. There are other motor signs of chorea minor less constant yet having the same characteristics, such as abnormal movements of the eyeballs, due to choreic twitchings of the ocular muscles; similar movements of the laryngeal muscles in conjunction with choreic involvement of the tongue and lips rendering speech momentarily or longer indistinct, difficult or impossible and of the pharyngeal muscles affecting the swallowing act.

With the constant motor signs of chorea minor must be reckoned, though rarely mentioned, the choreic movements of the trunk and abdominal muscles and just as constant and still less frequently mentioned and nowhere sufficiently emphasized are the abnormal respiratory movements in chorea minor.

A more general recognition of the respiratory signs of chorea minor will prove a decided aid in differential diagnosis, will better enable one to recognize the milder and atypical forms of the disease and in any case will serve to make the clinical picture more complete.

In a previous paper¹ in which I was able to tabulate twenty-two differential points between chorea minor and tic, I referred to the respiratory signs of chorea as follows: "The respiratory function is often disturbed in chorea—the respirations becoming so unequal and irregular, that a normal respiratory excursion rarely occurs and the expiratory phase is often explosive."

It is the purpose of the present communication to emphasize these and other characteristics of the disturbed respiratory function:

1. By reciting my personal observations concerning certain respiratory phenomena in chorea minor.

2. By illustrating these observations, as far as possible, with several respiratory tracings from cases of chorea minor recently studied in the neurologic clinic of the St. Louis University School of Medicine.

3. By referring to the meager periodical and textbook references concerning respiratory phenomena of chorea minor.

4. By deducing from the literature, independently of my own observations and from the motor manifestations of the disease other than the respiratory, the conclusion that certain respiratory phenomena are constant accompaniments of chorea minor.

PERSONAL OBSERVATIONS

In order that respiratory movements may be accurately observed, it is, of course, necessary that the trunk be free from all clothing and while ordinarily one may readily note the character of respiration when the patient is sitting or standing, it is desirable in chorea minor to cause the patient to lie comfortably on his back with head and shoulders slightly elevated and with the trunk and extremities postured in such positions as will afford the greatest degree of bodily relaxation. While other postures than those of complete relaxation as well as ordinary voluntary movements increase the motor disturbance in chorea minor, easy postures are essential in observing respiratory movements in this disease since they reduce the choreic movements in other parts to a minimum and thereby enable one to study better the abnormal respiratory movements.

Having rendered the patient as easy and comfortable as possible the following respiratory phenomena may be observed:

1. Irregular breathing. This is probably due to two factors: (a) Lessened amplitude in some respiratory movements and increased amplitude in others, giving one the impression that no two respiratory excursions are equal. (b) Sudden halts—cogs occurring either during the inspiratory or expiratory phases and most frequently during the latter but rarely more than one cog occurring in any phase. These do not occur in every respiratory movement but are of frequent occurrence and appear to be due to a sudden arrest of the movement in one phase by the development of an incomplete movement of the opposite phase but the original movement usually goes on to completion. These cogs render the respiratory movements distinctly jerky and may well be called choreic inspiratory and expiratory cogs. An inspiratory cog occurs most frequently near the end of expiration and an expiratory cog near the end of inspiration.

2. Now and then a sudden deep inspiration occurs far exceeding in amplitude the usual unequal inspiratory movements and is succeeded by a sudden explosive (forced) expiratory movement, the whole differing essentially from a sighing respiration by its rapidity in its every phase and by the absence of a pause at the end of expiration.

3. Relative decrease in the length of the normal expiratory phases and relative increase in the length or the so-called normal expiratory pauses: so that the time of an expiratory phase may become equal to or less than the time of an inspiratory phase and distinct pauses are of frequent occurrence at the end of expiration.

4. Sudden changes from abdominal to costal, or from costal to abdominal breathing, occur frequently, both being observed at times in a single respiratory excursion giving one the impression for the moment of a combination—a mixture of abdominal and costal breathing and the frequent impression of incoordination—a dissociation in the respiratory movements. When "pure abdominal breathing" occurs in chorea, movements of the whole chest are reduced to a minimum and when "pure costal breathing" occurs the upper abdomen remains practically motionless.

5. The respiratory rate is frequently accelerated and occasionally this may be slower than normal.

Not only may these phenomena be seen even in the mildest cases of chorea minor but one may also become aware of them by palpation and auscultation. When the cogs occur, there seems to be a sudden reversal in

1. The Differential Diagnosis Between Chorea Minor and Tic. Med. Record., 1907.

the direction of the onrushing air; at any rate, at such moments the respiratory sounds cease abruptly and then begin again.

Certain of the respiratory phenomena just described are seemingly among the earliest manifestations of the disease, are prominent throughout its active stages, and in many instances persist in an attenuated degree for a considerable period after the disappearance of all the general and other usually recognized motor manifestations of the disease.

Having studied in a routine way the foregoing respiratory phenomena in chorea minor for several years,



Fig. 1 Normal tracing

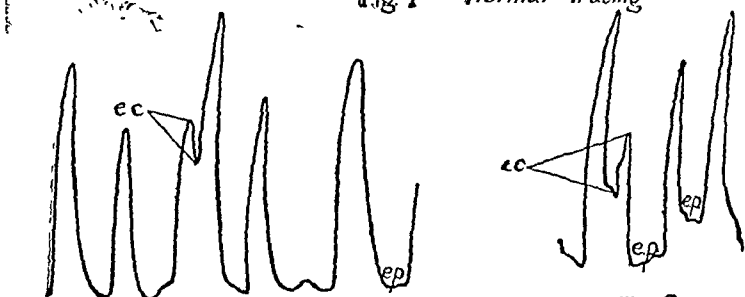


Fig. 2

Fig. 3

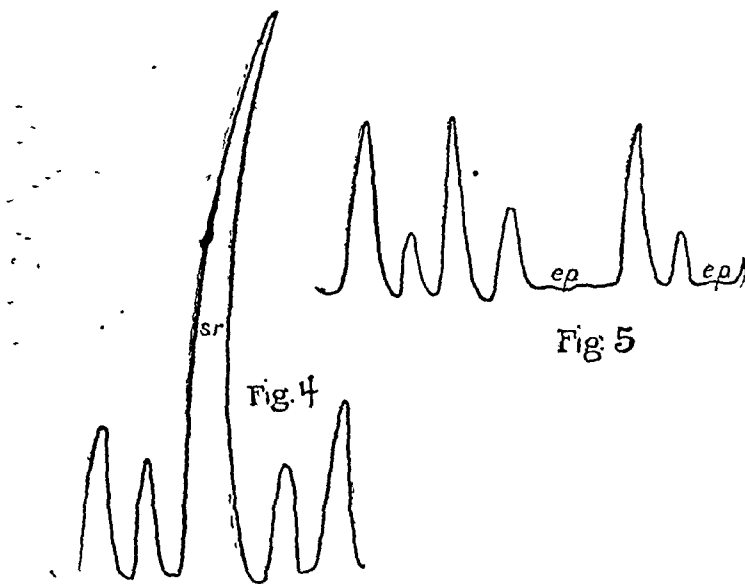


Fig. 4

Fig. 5

Fig. 1.—Respiratory tracing in normal individual; a, crest of wave representing end of inspiration and beginning of expiration; b, trough of wave representing end of expiration and beginning of inspiration; c, ascending limb representing the inspiratory phase; d, descending limb representing the expiratory phase; the curved line c a d represents a single respiratory cycle.

Figures 2, 3, 4 and 5 are graphic representations of respiratory tracings in chorea minor; e. c., expiratory cog; e. p., expiratory pause; i. c., inspiratory cog; s. r., sighing respiration.

it occurred to me in the Spring of 1907, that an attempt might be made to show some of these in a graphic manner—by making tracings in cases presenting themselves at the clinic. Cases seen regularly in dispensary work are usually of the milder type and it is only in such and in convalescing cases that accurate respiratory tracings are possible. When, or as long as, the twitchings of trunk, and extremity muscles are strong enough to cause movements of the trunk, accurate respiratory tracings are, of course, impossible.

Tracings were made from six suitable cases at intervals while they were under observation at the clinic, until they were considered fully convalescent and until all of the usually recognized motor manifestations of the

disease had disappeared. In four of these cases, tracings were secured three, six, seven and one half and eight months respectively after they had ceased attendance at the clinic, and since which time, in each case, the patient had been considered normal by his relatives. These had been mild cases and when the patients returned to the laboratory that tracings² might be made, every one, on superficial examination, appeared to be normal but closer inspection revealed in two of the patients an inconstant systolic murmur at the apex laterally and posteriorly with otherwise normal heart findings. In all there were slight rises of temperature (99 to 99.6 F.); slight fibrillary twitchings in external respiratory trunk and abdominal muscles; choreic tremor in fingers; associated movements in hands and disturbed respiratory function presenting some of the characteristics mentioned above.

It may be noted in passing that the persistence of such signs even in the milder cases seems to indicate, 1, that actual recovery may be long delayed in this disease, and this is probably true in the majority of cases; 2, that recurrences which so frequently take place are in reality true relapses.

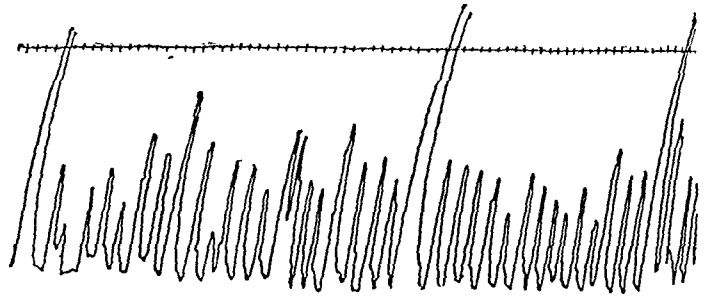


Fig. 6.—Respiratory tracing in Case 1 (J. M.), made June 6, 1907. Showing inequality of respiratory excursions, inspiratory and expiratory cogs, and frequent sighing respirations; respiratory rate 34 a minute.

RESPIRATORY TRACINGS

Before passing to a consideration of the respiratory tracings from cases of chorea minor, it will be well to consider the general characteristics of a tracing from a normal individual. In Figure 1, a tracing from a healthy boy of 11 years is shown and like all others should be read from left to right. A crest (a) represents the end of inspiration and the beginning of expiration; a trough (b) the end of expiration and the beginning of inspiration; the ascending limb (c) represents the inspiratory phase and the descending limb (d) the expiratory phase and the curved line (c a d) a single respiratory cycle.

When a healthy individual is passive and breathing quietly there is but little variability in the amplitude of inspiratory and expiratory movements, that is to say, one respiratory cycle is practically equal to another, furthermore, the expiratory phases are somewhat longer than the inspiratory phases. According to physiologists, the following proportion holds:

$$\text{INSPIRATION : EXPIRATION :: 5 : 6}$$

A difference in time between inspiration and expiration is shown in the tracing and while a continuous movement occurs in both inspiratory and expiratory limbs. the movement becomes gradually slower near the

2. The earlier tracings in all cases were made by Mr. C. H. Risser, the later ones by Mr. J. T. Swarts in the physiological laboratory of the St. Louis University School of Medicine and am greatly indebted to these gentlemen for their patience and great care in securing them.

end of expiration, but it does not entirely cease so that there is an apparent though not an actual pause at the end of expiration. Normally in quiet breathing only inspiration is a muscular act, expiration is purely passive, hence expiration is somewhat longer than inspiration and its ending less abrupt.

A respiratory tracing represents the movements of the chest only in one diameter and it does not, therefore, depict the respiratory movements of the whole chest but only of that part of the chest to which the transmitting tambour is applied. This fact must be kept in mind when considering the tracings from cases of chorea minor since they but imperfectly depict the abnormal respiratory phenomena so readily recognizable by other means, nevertheless, as will be seen the tracings confirm in a striking manner most of the phenomena before mentioned.

The respiratory tracings in the six cases studied show similarity, and instead of reproducing the tracings from every case, it will best serve the purpose of this communication to exhibit selected tracings from three cases at different stages of the disease. These are shown in Figures 6 to 15 inclusive. In Figures 2, 3, 4 and 5, some of the graphic representations of the respiratory phenomena in chorea minor are reproduced and a consideration of these will partly serve as a key to the

inspiration and expiration, though in many of the excursions expiration is practically equal to inspiration; respiratory rate 46 per minute. Patient showed rapid improvement under rest in bed and forced feeding, and a tracing made July 8 showed only slight inequality in respiratory excursions, now and then a sighing respiration and expiratory pauses; lessening ratio between inspiration and expiration, slight cogging, respiratory rate 24 per minute. On July 25 patient showed a gain in weight of 8 pounds since entering the hospital, no fibrillary contractions noted about extremity muscles, but these were still present in a lessened degree in trunk, thoracic and abdominal muscles and rather decided choreic tremor in fingers was noted. The tracing made on this date, Figure 8, shows respiratory inequality, abortive cogs and occasional sighing respiration, decided expiratory pauses with increasing ratio between inspiration and expiration; respirations 14 per minute. The patient left the hospital August 3, fully convalescent, and was not seen again until October 22, on which date he returned to the clinic and again complained of weakness and respiratory distress. Since leaving the hospital, he had shown continued improvement, had returned to work and for about six weeks felt perfectly well. Excepting his general condition, which was still excellent, other signs of chorea minor were very similar to those noted on April 6. The tracing in Figure 9 was made October 22, and shows only slight inequality in respiratory excursions; lessened ratio between inspiration and expiration, decided expiratory pauses; and an occasional abortive cog.

Subsequent History.—Patient did not return to the clinic again, but I saw him two weeks later at the City Hospital,

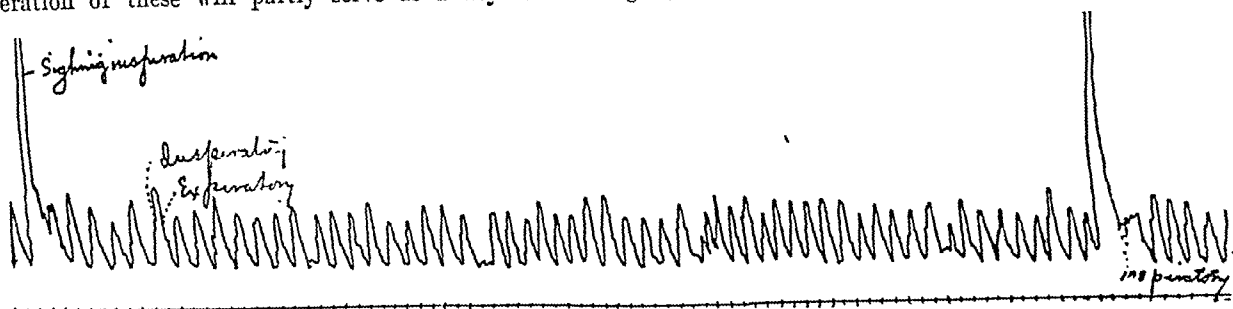


Fig. 7.—Respiratory tracing in Case 1 (J. M.), made June 15, 1907. Lessened inequality in respiratory excursions.

tracings in Figures 6 to 15 inclusive. Brief histories of the three cases and the tracings in each case will now be considered.

CASE 1.—History.—J. M., boy, aged 15, was suffering from respiratory (?) chorea. At no time during the course of the disease were spontaneous choreic twitchings ever prominent. These were always fibrillary and never sufficient in degree to bring about incoordination in purposeful movements and were most marked about the trunk, abdominal and thoracic muscles.

Examination.—The tongue, facial and ocular muscles were slightly involved; respiratory function was greatly disturbed and marked associated movements in face, hands and feet were present. The child was mentally morose and irritable; he had the characteristic choreic facial expression and bodily attitudes and was poorly nourished and anemic. There was an inconstant systolic murmur, rapid and variable heart rate, and the temperature ranged between 99 and 100.5 F. The patient's principal complaints were respiratory distress, loss of appetite and weakness when he first came to the clinic, April 6, 1907. He came irregularly thereafter until June 6, on which date, tracing shown in Figure 6 was made. This tracing shows great inequality in the respiratory excursions; inspiratory and expiratory cogs; frequent sighing respirations; precipitate, forced expiratory movements so that expiration and inspiration are often practically equal in time; respiratory rate 34 per minute. Absolute rest in bed was insisted on, and the patient returned to the clinic June 15 and became a bed patient in Rebekah Hospital. On this date tracing shown in Figure 7 was made. This tracing shows lessened inequality in respiratory excursions; cogs; sighing respirations, expiratory pauses and increasing ratio between

and the respiratory phenomena were then pronounced, choreic contractions in tongue, facial, trunk, thoracic, abdominal and extremity muscles were prominent, but not sufficient in degree to cause incoordination in voluntary movements. He left the hospital a few days later, moved to a distant city and his further history is unknown.

CASE 2.—History.—Wanda G., aged 13; had a very mild chorea; came to the clinic June 12, 1907. Trouble began three weeks before when changes in disposition, in ability to stand or keep still were noted by the mother. Since then she had become more fidgety, and for the past week had shown awkward movements about left upper and lower extremities.

Examination.—She had the choreic expression and attitudes; there were slight involvement of face and tongue; dilated pupils; recent emaciation; anemia; spontaneous choreic contractions about hip and shoulder girdle, lower and upper extremity muscles on the left and abdominal, trunk and thoracic muscles on both sides. Any voluntary movement caused increased spontaneous movements and slight incoordination; marked associated movements about face and left extremities; respiratory movements choreic in character; temperature 99.5 F., pulse 108, slightly variable rate, inconstant systolic murmur. The spontaneous choreic contractions were so slight as in no way to interfere with graphically recording the respiratory signs and the tracing shown in Figure 10 was made. This tracing shows inequality in respiratory excursions; sighing respirations; respiratory cogs; expiratory pauses and lessened ratio between inspiration and expiration; respirations about 19 per minute. Absolute rest in bed was advised, but as this could not be well carried out at home, patient entered Rebekah Hospital on June 19, where rest in bed and forced feeding were instituted. Rapid improvement

was noted, and she was discharged from the hospital, July 22, fully convalescent. The tracing shown in Figure 11 was made on June 19, after six days' rest in bed at home. This tracing shows respiratory inequality; sighing respirations; expiratory pauses; and increasing ratio between inspiration and expiration when compared with Figure 10; respirations 28 per minute. A tracing made July 1, twelve days after entering the hospital, showed slight inequality in respiratory excursions; infrequent cogs; expiratory pauses; and in many expiratory excursions the ratio between inspiration and expiration was practically normal. Another tracing made three weeks later showed slight inequality in the respiratory excursions; one distinct and many abortive cogs, with practically normal ratio between inspiration and expiration; respirations 20 per minute.

Subsequent History.—The patient after leaving the hospital was not seen again until March 7, 1908, about seven and one-half months after convalescence had seemed to be fully established. She had felt well and had been working at sewing in the interim. The tracing shown in Figure 12 was made March 7, 1908, and shows that respirations were still not quite normal as indicated by a sighing respiration; inspiratory and expiratory cogs, but the respiratory movements are practically normal as regards amplitude and ratio between inspiration and expiration.

CASE 3.—History.—Martha D., aged 11; had a mild chorea and came to the clinic June 21, 1907. Her mother stated that two months ago the girl became irritable, fidgety, complained

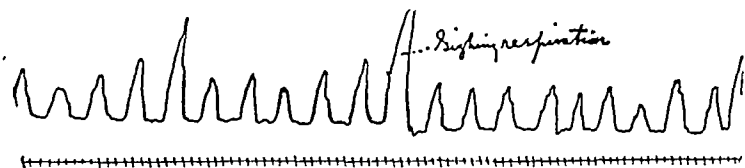


Fig. 8.—Respiratory tracing in Case 1 (J. M.), made July 25, 1907. Respirations 14 a minute.

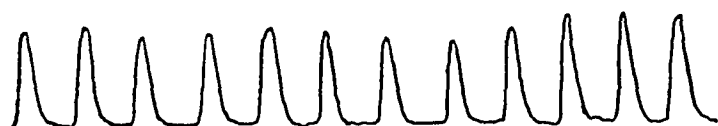


Fig. 9.—Respiratory tracing in Case 1 (J. M.), made Oct. 22, 1907. Nearly normal but showing an occasional abortive cog.

of loss of appetite, and for about one month she had dragged her left leg peculiarly in walking and refrained from using her left upper extremity.

Examination.—Patient was well nourished; visible mucous surfaces pale; choreic expression and attitudes; frequent shifting, wiggling movements of trunk when standing. There was slight choreic involvement of face and tongue and spontaneous movements about the hip, shoulder girdle and muscles of upper and lower extremities on the left, most marked proximally; similar movements of trunk, abdominal and thoracic muscles on both sides. Any voluntary movement with left extremities increased the spontaneous movements, and at such times slight incoordination occurred. There were marked associated movements in face and left extremities; choreic respiratory movements; temperature 99.5 F., pulse 90, slightly variable in rate, and occasionally a soft systolic murmur could be heard best at apex. The spontaneous movements about extremities and trunk were insufficient in degree to interfere with a graphic representation of respiratory movements, and the tracings shown in Figure 13 were made three days later. This shows great irregularity in respiratory excursions; frequent sighing respirations; inspiratory and expiratory cogs; expiratory pauses; decreased ratio between inspiration and expiration; at times purely abdominal breathing; respirations 24 per minute. The tracing shown in Figure 14 was made July 1, 1907, after one week's rest in bed at home. This tracing shows inequality in the respiratory excursions; frequent cogs; sighing respirations; slight expiratory pauses; and in many excursions lessened ratio between inspiration and expiration. Respirations 28 per minute. A tracing made one week later showed great irregularity in the respiratory excursions; cogs; distinct expiratory pauses; in-

creasing ratio between inspiration and expiration; respirations 26 per minute. The tracing shown in Figure 15 was made July 27, 1907, and indicates slight inequality in the respiratory excursions; cogs; expiratory pauses; and in many excursions the expiratory ratio is practically normal. At the time this tracing was made, the patient seemed fully convalescent. The choreic expression, attitudes and incoordination had entirely disappeared.

Subsequent History.—On request, she returned to the clinic March 7, 1908, and the mother stated that the girl had seemed to be normal in every way since her last visit to the clinic; that she had made a good record in school and no complaint had been made by the teacher. The tracing made on this day was practically that of a normal individual as far as amplitude, respiratory excursions and ratio are concerned; it differed from that of a normal individual only in the occasional occurrence of cogs.

All of the respiratory phenomena before mentioned are graphically demonstrated in the tracings from the three cases excepting "the mixture of costal and abdominal breathing as occurring in a single respiratory cycle" and "the dissociation in the respiratory movements." These could not be graphically shown without



Fig. 10.—Respiratory tracing in Case 2 (Wanda G.), made June 12, 1907. Showing inequality in respiratory excursions, sighing respirations, respiratory cogs, expiratory pauses and lessened ratio between inspiration and expiration; respirations about 19 a minute.

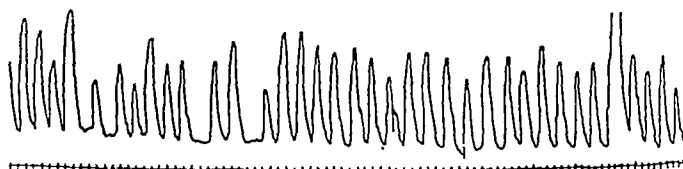


Fig. 11.—Respiratory tracing in Case 2 (Wanda G.), made June 19, 1907, after six days rest in bed. Respirations 28 a minute.

recording the respiratory movements of two or more diameters of the chest at the same time and I hope to be able to do this later. Without attempting to offer an explanation, just now, for the respiratory phenomena in chorea minor, let us for the moment consider the literature bearing on disturbed respiratory function in this disease.

LITERATURE ON DISTURBED RESPIRATORY FUNCTION IN CHOREA MINOR

A consideration of the literature will show that the majority of authors writing on chorea do not even refer to its respiratory signs and those who do, make only meager references and there is a wide diversity of opinion among them. I have been unable to find a single reference concerning the easily recognized respiratory signs of chorea minor in recent periodical literature and no one to my knowledge has ever emphasized their importance in diagnosis. Following is a series of quotations, the earliest reference I have been able to find being by John Eberle:³

EBERLE: "Respiration is often anxious and irregular; the voice is altered and articulation is indistinct and stuttering."

ROBLEY DUNGLISON: "The articulation is also affected at times so as to occasion stammering, and occasionally the respiratory muscles and those concerned in deglutition are implicated."

3. A Treatise on the Practice of Medicine, 1841.
4. Practice of Medicine, 1842.

ROMBERG⁵ cites three cases in which respiratory function was profoundly affected, and states that the internal and external muscles of respiration are rarely affected.

GERHARDT:⁶ "The movements occur in voluntary muscles excepting those of respiration."

MEIGS AND PEPPER:⁷ "The muscles of the external and internal respiratory apparatus are rarely affected."

S. JACCOUD:⁸ "The respiratory muscles, those of the larynx, those of the pharynx and sphincters ordinarily escape."

VON ZIEMSEN⁹ seems to have been the first to have paid particular attention to the disturbed respiratory function in chorea. He calls attention to the fact that "the participation on the part of the vegetative muscular system is generally denied or is regarded as very rare, but the facts which favor this view are too ambiguous to permit of such interpretation. In the case of such automatic actions as the respiration in which the will is capable of influencing the rapidity and rhythm of the movements, irregularities are often observed in the act whether of inspiration or expiration which can only be interpreted as choreic."

VON ZIEMSEN was the first to observe chorea of the laryngeal muscles, of which no cases had been published up to that time. This he found to be "a usual accompaniment of the severe form of the disease and characterized by insufficient force and duration of the tension of the vocal cords in phonation, owing to a want of coordination and persistence in the

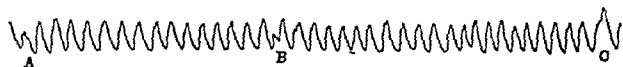


Fig. 12.—Respiratory tracing in Case 2 (Wanda G.), made March 7, 1908. A, inspiratory cog; B, expiratory cog; C, sighing respiration. Respirations, 17 a minute.



Fig. 13.—Respiratory tracing in Case 3 (Martha D.), made June 24, 1907. Great irregularity in respiratory excursions; frequent sighing respirations; inspiratory and expiratory cogs; expiratory pauses; decreased ratio between inspiration and expiration; purely abdominal breathing (w) at times; respirations 24 a minute.

muscular act. With the laryngoscope it is very easy to watch the restlessness of the laryngeal muscles, the twitching contractions of the closers, openers and tensors of the cords."

ALTHAUS:¹⁰ "The patient can not sing because respiration is jerky and explosive, the air is not properly husbanded, and though great effort is made, there is no result but fatigue from excessive disorder in coordination of the muscles. That the diaphragm and abdominal muscles suffer is shown by unequal and irregular respirations."

BRISTOWE:¹¹ "The difficulty in speech depends not infrequently on the spasmodic affection of the larynx and respiratory muscles which compels him to draw his breath suddenly through the laryngeal orifice with a strained sound. In some cases, even when no attempt at speech is being made, odd croaking, grunting sounds are thus from time to time produced."

ROSENTHAL:¹² "The respiratory movements are irregular; speech is embarrassed and the pulse is often accelerated. These phenomena are due to the spasmodic action of the muscles, of respiration of the larynx, pharynx and perhaps also of the heart."

WILLIAM A. HAMMOND:¹³ "Respiration is imperfect."

TROUSSEAU:¹⁴ "Strange sounds are occasionally produced through the voice coming out in inspiration instead of expiration. While the patient expires in the act of speaking, the inspiratory muscles suddenly contract convulsively and cause the air to rush into the larynx so that from this kind of antagonism between the mind that wills the speech and the inspiratory muscles the voice undergoes a strange alteration."

W. H. BROADBENT:¹⁵ "In the mildest forms the diaphragm and muscles of the chest and abdomen are affected, causing irregularity in respiration."

ROBERTS:¹⁶ "Respiratory movements are infrequent, jerky and irregular, the natural relations of the abdominal and thoracic movements being perverted during breathing; sometimes there is a dry nervous cough or grunting sound. It does not often happen that the muscles of the trunk seem to be much affected, but choreic patients are usually unable to sit or lie quietly for any length of time. The muscles of larynx are rarely implicated, those of the pharynx never."

WENNER:¹⁷ "Respiration in severe cases is sometimes affected, acquiring a jerky character."

JAMES ROSS:¹⁸ "The respiratory rhythm becomes irregular and jerky, and in laryngoscopic examination the vocal cords have been observed to act in an irregular and disorderly manner."

VOGEL:¹⁹ "The body is turned about and twisted in every direction. The respiratory muscles, however, do not participate in the jactitation; at least the inspirations are not executed irregularly."

M. ALLEN STARR:²⁰ "Occasionally the laryngeal and respiratory muscles are affected and noises are made in the throat."



Fig. 14.—Respiratory tracing in Case 3 (Martha D.), made July 1, 1907, after one week's rest in bed. Respirations 28 a minute.



Fig. 15.—Respiratory tracing in Case 3 (Martha D.), made July 27, 1907. Respiratory ratio practically normal; respirations 14 a minute.

WHARTON SINKLER:²¹ "The muscles of respiration, especially the diaphragm, are sometimes also affected, as well as the voluntary muscles. The respirations are irregular, sometimes short, sometimes deep, with occasionally a few rapid, shallow respirations, and then a long sighing respiration."

J. LEWIS SMITH:²² "In rare instances chorea affects respiratory muscles so as to produce a peculiar involuntary barking or squeaking voice by the forcible expulsion of air over the tense vocal cords."

WOOD AND FITZ:²³ "The respiratory muscles are the last to be affected, but cases have been reported in which hiccough, crowing inspirations, irregular respiration and other evidences of choreic action of the respiratory muscles were abundantly present."

CH. FERE:²⁴ "The contortions of the features are associated with disturbance of speech; the articulation is hesitating or stuttering unless there is complete glossoplegia; the sounds are emitted by jerks and are often cut short by short intonations and noisy explosions. Singing becomes impossible be-

5. Manual of Nervous Diseases, II, 1853.

6. Lehrbuch der Kinderkrankheiten, 1860.

7. Practical Treatise on the Diseases of Children, 1870.

8. Traité de pathologie Interne, ed. 3, 1873.

9. Encyclopædia, xiv, 1877.

10. Diseases of the Nervous System, 1878.

11. Treatise on the Theory and Practice of Medicine, 1879.

12. Clinical Treatise on Diseases of the Nervous System, II, 1870.

13. Treatise on Diseases of the Nervous System, 1881.

14. Lectures, I, 1882.

15. Chorea, in Quain's Dictionary of Medicine, 1883.

16. Theory and Practice of Medicine, 1884.

17. Nervous Diseases, 1885.

18. Hand-book of the Diseases of the Nervous System, 1885.

19. Diseases of Children, 1890.

20. Chorea, in the American Text-Book of the Diseases of Children, ed. by Louis Starr, 1894.

21. Chorea, in A Text-book of Nervous Diseases by American Authors, ed. by Dercum, 1895.

22. Diseases of Children, 1896.

23. Practice of Medicine, 1897.

24. Spasmodic Neuroses, Twentieth Century Practice, ed. by Stedman, x, 1897.

cause the patients are incapable of regulating or sustaining the expiration. Digestive and respiratory functions are disturbed by the movements of the thoracic muscles."

C. E. BEEVOR:²³ "The muscles of the trunk become affected, causing the patient to rock about while standing up, and the respiratory muscles may act irregularly."

WOLLENBERG:²⁴ "Speech is in some degree in all cases disturbed, partly due to functional disturbance in the glottis and abdominal muscles. The involvement of the latter is shown plainest in the unequal and jerky expiratory movements (von Ziemssen), in consequence of intermitting expiratory pressure the patient can only enunciate a few syllables or perhaps only one, and then a deep and hasty inspiration occurs. In other cases syllables or numbers are forcibly enunciated in consequence of the explosive contractions in the abdominal muscles. Inspirations, by stronger involvement of the respiratory muscles, especially the diaphragm, are irregular, now superficial, now deep, and between the respiratory phases pauses occur of variable length."

SACHS:²⁵ "In some a peculiar condition of speech occurs which is in part due to difficulties in articulation and in part to choreic movements in respiratory muscles necessitating rapid breathing."

POTTS-GALLANDET:²⁶ "The muscles of respiration, especially the diaphragm, are sometimes affected, causing irregular respirations, sometimes shallow, sometimes deep, with occasionally a few rapid, shallow respirations and then a long sighing one."

J. RISSIEN RUSSELL:²⁷ "The movements of the thorax in respiration are also made disorderly, chiefly owing to the implication of the diaphragm. Inspiratory efforts do not occur in any regular order, either as regards time or depth of movement; thus irregular pauses intervene and one inspiration is deep, perhaps excessively so, while another is shallow or abortive. Incoordination of respiratory movements sometimes shows this in alternation between abdominal and thoracic respiration."

FREDERICK TAYLOR:²⁸ "In the trunk there are irregular contractions of the thoracic and abdominal muscles and of the diaphragm. The trunk may be twisted around to one or the other side. Respiration is gasping or jerky from sudden descent of the diaphragm or from quick contractions of the abdominal muscles. Speech is irregular and badly sustained and the patient can not sing a long note. This is no doubt largely due to the imperfect action of the respiratory muscles."

TAYLOR AND WELLS:²⁹ "Speech is often defective (dysarthria), due to choreic action of the muscles used in articulation and also in respiration."

A. McL. HAMILTON:³⁰ "The patient breathes in a catchy, quick way, and if the body be stripped it will be found that the action of the intercostals is uneven."

W. V. LUEBE:³¹ "In contrast to the voluntary muscles, the musculature of heart, bladder and rectum, as well as respiratory and pharyngeal muscles are not involved."

W. A. GOWERS:³² "The muscles of respiration, especially the diaphragm, frequently share the irregularity observed in the action of the more strictly voluntary muscles; the respirations are unequal; deep and shallow breathing alternates or deep breaths are separated by pauses; thoracic and abdominal breathing may alternate irregularly."

DANA:³³ "The muscles of respiration may be involved so that the rhythm is uneven."

BUTLER:³⁴ "The speech is indistinct, confused and difficult, and the muscles of respiration may be affected."

FÖRSTER:³⁵ "In severe cases the arms and legs are tossed about, the trunk writhes, the head moves from side to side,

the eyes show jerking movements, gasping, inspiratory movements, explosive, writhing or snoring expiratory movements, inarticulated clucking and groaning sounds follow one another in irregular order."

B. K. RACHFORD:³⁶ "The diaphragm and other respiratory muscles may be occasionally affected, producing irregularity and loss of rhythm of respiratory movements."

HALBERT:³⁷ "Respiration may be involved when diaphragm and thoracic muscles are involved."

OPPENHEIM:³⁸ "The respiratory muscles are generally affected, especially the diaphragm; irregular, spasmodic breathing occurs."

H. A. HARE:³⁹ "The child also frequently gives vent to curious guttural or smacking sounds, due to the action of the muscles of the mouth, pharynx and tongue. These sounds may also be increased by spasms of the diaphragm."

ASHBY AND WRIGHT:⁴⁰ "The muscles of respiration do not escape; the child taking a deep sighing inspiration, then perhaps there is a series of shallow irregular respirations."

JAMES TAYLOR:⁴¹ "Irregularity of respiratory movements are conspicuous and spasmodic movements occur. The breath is often taken in rapidly and held for some time, then let go with a loud sigh. The trunk is always involved to some extent, and movements of a writhing nature are characteristic."

J. H. MUSSER:⁴² "They may involve the muscles of the face, the arm, the leg or the muscles of the trunk, particularly the diaphragm, giving rise to an irregular jerking inspiration."

T. K. MONRO:⁴³ "The respiratory muscles . . . contract suddenly and irregularly. Speech is often impaired, due to the involvement of the muscles of articulation and respiration, and possibly also to an involvement of the larynx. Speech is apt to be uttered quickly and to be interrupted."

OSLER:⁴⁴ "In severe cases the child will make no attempt to speak. The inability to speak is in articulation rather than in phonation. Paroxysms of panting and of hard expiration may occur, or odd sounds may be produced."

FERDINAND FRÜHWALD:⁴⁵ "At first the twitchings are of short duration; soon, however, they increase in intensity, and in severe cases involve also the lower extremities, the muscles of the tongue and pharynx and rarely the diaphragm."

CHURCH AND PETERSON:⁴⁶ "The muscles of the trunk and neck do not escape, and may cause nodding and bendings that are often most apparent when the patient is seated. The diaphragm and thoracic muscles are commonly invaded, causing irregularity of respirations and sometimes spasmodic noises, or . . . peculiar involuntary clucking or smacking sounds."

EDWARDS:⁴⁷ "Speech is quicker than normal, and may be aggravated by irregular movements of the glottis and respiratory muscles, resulting in panting, irregular inspiration or expiration or sobbing sounds in which the diaphragm participates."

FRENCH:⁴⁸ "The muscles of the diaphragm may be involved, indicating difficulty and irregularity of respiration."

D. J. MCCARTHY:⁴⁹ "In severe chorea, the movements become much more marked, the respirations become jerky and irregular, the heart action irregular, and the child speaks only with difficulty and with an accentuation of the movements, or at times is unable to speak at all."

TYSON:⁵⁰ "Speech is affected sooner or later in one-fourth of the cases, but the extent varies greatly from slight hesitancy to incoherent, the difficulty being in the muscles of articulation rather than in phonation."

L. G. GUTHRIE:⁵¹ "Speech is frequently indistinct and impossible from incoordination, coordination and spasm of muscles concerned in articulation and respiration."

38. Neurotic Disorders of Childhood, 1905.

39. Practice of Medicine, 1905.

40. Lehrbuch der Nervenkrankheiten, ed. 4, 1905.

41. Text-Book of the Practice of Medicine, 1905.

42. Diseases of Children, 1905.

43. Nervous Diseases in Childhood, 1905.

44. A Practical Treatise on Medical Diagnosis, ed. 5, 1905.

45. Manual of Medicine, 1906.

46. Practice of Medicine, ed. 6, 1906.

47. Handbook of the Diseases of Children, ed. by Wescott, 1906.

48. Nervous and Mental Diseases, 1906.

49. Practice of Medicine, 1907.

50. Text-Book of the Practice of Medicine, 1907.

51. Chorea. Practice of Pediatrics, ed. by Carr, 1907.

52. Practice of Medicine, ed. 4, 1907.

53. Functional Nervous Disorders in Childhood, 1907.

25. Diseases of the Nervous System, 1898.

26. Chorea Paralysis Agitans Para Myoclonus Multiplex, Vienna, 1899.

27. Treatise on the Nervous Diseases of Children, 1900.

28. Nervous and Mental Diseases, 1900.

29. Chorea, Clifford Allbutt's System of Medicine, vii, 1900.

30. Chorea, in Practice of Medicine, ed. by Gibson, 1900.

31. Manual of Diseases of Children, 1901.

32. Reference Hand-Book of Medical Sciences, 1901, ed. 2.

33. Specielle Diagnose der inneren Krankheiten. II, 1901.

34. Manual of Diseases of the Nervous System, 1901.

35. Text-Book of Nervous Diseases and Psychiatry, 1904.

36. Diagnostics of Internal Medicine, 1904.

37. Das Wesen der choreatischen Bewegungsstörung. Samml. klinische Vortr., 1904.

DEDUCTIONS FROM THE LITERATURE AND FROM THE
MOTOR MANIFESTATIONS OF THE DISEASE OTHER
THAN THE RESPIRATORY. EXPLANATION.
CONCLUSION

If we contrast the statements of those who say specifically that the respiratory muscles are not involved in chorea and of those who say "rarely," "occasionally," "in severe cases," "frequently," "generally," with those who regard disturbed respiratory function as a constant accompaniment of the disease, the conclusion becomes inevitable that the difference in opinion is due to the varying degree of attention heretofore given respiratory signs of chorea. We are warranted, therefore, in drawing this conclusion if we remember that the majority of authors writing on chorea do not even refer to its disturbed respiratory function and that the reason for this fact is certainly not to be found in the nature of the disease but rather in the lack of attention to its respiratory phenomena.

A consideration of the literature, therefore, warrants the conclusion that certain respiratory phenomena are among the constant signs of the disease. This conclusion finds confirmation in the motor manifestations of the disease other than the respiratory. The involvement of the trunk and abdominal muscles are among the earlier manifestations of the disease and among the last to disappear. In early and active stages, the careless, sluggish variable attitudes and shifting, writhing movements of the trunk are due to the spontaneous choreic contractions in these muscles. Careful inquiry concerning the first change noted will elicit statements of sluggish, variable attitudes—"inability to keep still," etc. Inspection of the naked trunk during the early and active stages of the disease will show that the variable attitudes are incident to, or immediately follow, visible and palpable contractions in the muscles just mentioned. After the disappearance of all the general and the usually recognized motor manifestations of the disease, contractions in an attenuated degree persist in these muscles and are among the last of the motor phenomena to disappear. There is unanimity concerning the involvement of the trunk muscles in severe chorea but wide divergence of opinion concerning such involvement in mild cases and the period of the disease when such involvement occurs. The consensus of medical opinion at the present time concerning these points is summed up by Förster as follows:

It is interesting to note the extension of choreic movements with the development of the disease. While in the beginning only the distal parts of the extremities, the fingers and toes are involved, the order of extension of the spontaneous movements is proximal; the hand, forearm, arm, shoulder and foot, leg, thigh, trunk are involved one after the other. The more severe the case the more the proximal parts are involved, the milder the case, the more the spontaneous movements are confined to the distal segments.

This is not the place to dwell on the order of development of choreic movements, though my personal observation of cases seen in the earlier stages and studied throughout their course would cause me to give just the reverse order of development to that outlined by Förster. That the trunk muscles are involved more or less in all cases of chorea, the degree depending on the severity of the disease, is a point I desire to establish and emphasize. I have paid especial attention to this point in my studies in chorea minor and my observations find confirmation in the writings of von Ziemssen, Broadbent,

Vogel, Frederick Taylor, Church and Peterson James Taylor, C. E. Beevor, and others.

Now if we admit the involvement of the trunk and abdominal muscles even to a slight degree in chorea minor, we must then admit the possible, nay more, the necessary, involvement of some of the respiratory muscles. This follows from the fact that all of the respiratory muscles, excepting those innervated by the seventh, tenth and eleventh cranial nerves, are innervated by the spinal nerves having a common source of innervation with the trunk, abdominal and extremity muscles in the anterior horn cells. That the muscles innervated by the seventh and eleventh cranial nerves are constantly involved to some degree in chorea is a matter of general observation and acceptance and the frequent involvement of the vocal cords is generally admitted. Therefore, unless we assume that the respiratory muscles escape in some inexplicable way, we are forced to admit their constant involvement in chorea minor.

Admitting then the involvement of the respiratory muscles in chorea, can we explain the respiratory phenomena recorded in this paper, and most of them illustrated in the tracings by the spontaneous choreic contractions in the respiratory muscles? Some of them can be explained in no other way and these are the "inspiratory and expiratory cogs," whereas the active and explosive expiratory movements, the expiratory pauses, the sighing respirations, the sudden changes in type, the mixture of types, the incoordination—dissociation and the variable amplitude of the respiratory excursions admit of no such explanation. To explain these, we must assume an irritation or fatigue, and probably both, of the respiratory center itself by the agent causing chorea. The principal respiratory center is in the medulla and is situated between the nuclei of the eleventh and twelfth cranial nerves below and the seventh above, and it would indeed be an inexplicable condition if the respiratory center escaped.

From the beginning, and ever afterward in health, our respiratory movements are associated, synergic and coordinated. The normal individual is incapable of executing other than coordinated respiratory movements. However much he may voluntarily alter their rhythm or however much their rhythm may be altered, as in emotional states, in the beginning of any voluntary, purposeful movement, or reflexly as in coughing and sneezing, there is still harmonious, synergic, coordinating activity exerted by the respiratory center over the muscles engaged in the respiratory act.

We readily account for the Cheyne-Stokes' respiration; the disturbance in respiration frequently met with in inflammatory processes of the brain or its membrane; in tumors, abscesses, traumatism, shock, insolation; in fevers; in infectious diseases; in intoxications; in the action of drugs, etc., by assuming an involvement in some way of the respiratory center. When we consider the anatomic location of the respiratory center, the physiology of respiratory movements, the motor manifestations of chorea minor other than the respiratory and lastly the respiratory phenomena themselves, the conclusion becomes inevitable that most of them can be explained in no other way than in assuming an involvement of the respiratory center by the agent causing chorea minor.

ABSTRACT OF DISCUSSION

DR. FRANK R. FRY, St. Louis: I believe that Dr. Graves brought out an important point. There are occasional instances in which we have misgivings about cases of chorea,

and anything that assists in their diagnosis is welcome and helpful.

DR. L. H. METTLER, Chicago: We still find that clinical differentiations between this and the ties and certain choreiform manifestations are based to a considerable degree on the localization of the symptoms. We are told often that chorea minor involves especially the peripheral extremities, whereas the ties are more obvious about the face and head, as though that were an important element of distinction. In some old definitions and even in some modern definitions we are informed that chorea minor implicates the voluntary muscles; and the movements are spoken of as remarkable for being involuntary, yet associated with the voluntary parts of the body. The suggestions of Dr. Graves as to the respiratory movements show that the disease is a much wider affection than these clinical differentiations would lead us to suppose.

I have long been teaching that the sensory manifestations, the mental manifestations, as well as the more prominent motor manifestations involving the different parts of the body, point to the fact that chorea minor is something more than a mere cortical trouble, and that the clinical physiopathology of the disease carries us back to what most of us are beginning to recognize, and which ere long all of us will recognize, that we have here a generalized infective process, whether rheumatic or otherwise, and that this infection involves more or less all of the functions of the body, manifesting itself only more prominently in certain ways, as Dr. Graves has brought out. I think that these investigations clearly show us that in this infective process we have a disease which involves more or less the entire nervous system in all of its various functions, and not alone the mere motor areas. Particular parts of the motor function we have, even to the present time, been regarding too narrowly because they were merely most prominent clinically.

DR. WILLIAM W. GRAVES, St. Louis: I fully agree with Dr. Mettler that in chorea minor we are dealing with a disease of rather widespread irritative nature. I believe a study of its respiratory phenomena will emphasize that which now is generally recognized, that chorea minor is really a disease, due to an infectious agent, though not definitely known, as measles, smallpox, scarlet fever or other infectious disease. The entire clinical history of the disease points to this conclusion.

LACTIC ACID AS AN AGENT TO REDUCE INTESTINAL PUTREFACTION

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In a book recently published and entitled "The Prolongation of Life," Optimistic Studies by Elie Metchnikoff, the author has made an attempt to analyze the causes of premature senility. The origin and uses of the large intestine are discussed and an attempt made to account for its purpose. The author argues that protection is afforded to animals which are frequently compelled to make a hasty escape from enemies by allowing the waste products of digestion to accumulate without the necessity of immediate discharge. He seeks to prove this theorem by a number of examples. Birds have neither a large intestine nor a bladder and therefore are unable to retain waste products. Exception to this rule is the ostrich, which, not being able to fly, has developed a large intestine so as to be enabled to continue a lengthy flight. Mammals have, as a rule, a large intestine because their terrestrial habits of life make it expedient for them to protect themselves by flight from some sudden enemy.

THE COLON AND LONGEVITY

Metchnikoff then quotes examples of short-lived mammals. The horse, for instance, has a huge large intestine

line in which waste products accumulate and the discharges are often the results of food taken several days previously. The same applies to sheep and cattle. All these animals, according to their size, seem entitled to longer lives than they actually possess. On the other hand, birds of prey which live largely on putrefying meat show a small intestinal flora of bacteria, because, as Metchnikoff reasons, there is no intestinal sac in which food wastes accumulate and these animals have consequently long lives. It has been supposed by some authors that an exclusive vegetable diet is not productive of intestinal putrefaction and that putrefaction is due to a meat diet. This may be true in a measure and under certain conditions. Metchnikoff thinks, however, that intestinal putrefaction is primarily due to the presence of a large intestine, and that premature senility is the result of the accumulation of waste products which remain for varying lengths of time in the colon and are there subject to the activity of putrefactive bacteria.

Herter agrees with the view that premature senility is due to putrefaction caused by the activity of anaerobes, chiefly *B. aerogenes capsulatus* (*B. Welchii*). The character of the food influences the intestinal flora, causing differences not only in number but in kind. In infants fed exclusively on human milk an anaerobic bacterium described by Tissier (*B. bifidus*) is present in large numbers, especially in the upper part of the intestinal canal. This organism produces too much acid for most bacteria to live in and affords protection against bacteria in general, and especially against pathogenic and putrefactive bacteria, which thrive best in alkaline media.

In the intestines of infants fed on cow's milk, on the other hand, several species of anaerobic bacteria find suitable conditions for development. These bacteria break down proteins with the production of substances which may become injurious to the system, especially if they are allowed to accumulate by large amounts of protein-containing food reaching the colon.

INTESTINAL FLORA

In adult life few bacteria of any kind are found in the normal stomach, being promptly killed by the hydrochloric acid of the gastric juice. In the duodenum there are few, in the jejunum more, and in the colon almost countless numbers. The distribution of species also varies according to locality. Aerobes and streptococci are chiefly found in the upper parts of the intestines, but in the colon we find in addition large numbers of anaerobes which are practically absent in the higher intestine. The anaerobes can only thrive after the free oxygen is used up by the aerobes, and if undigested protein reaches the colon they find there favorable opportunity to elaborate from it the poisonous products of putrefaction.

The presence of acid is unfavorable to the growth of putrefaction bacteria, and it is believed that streptococci and bacteria of the colon *aerogenes* group serve a useful purpose by the acid they produce and by using up material on which the anaerobic bacteria might thrive. The streptococci exercise an inhibiting influence on bacteria of the colon *aerogenes* group. The whole question of the usefulness or uselessness of bacteria in the digestive tract is still debated, though most authorities seem to agree that the production of acids in the digestive tract is of distinct value.

A proper balance of carbohydrates and proteins, the use of only a moderate amount of protein, the avoid-

ance of imperfectly-cooked meat, and thorough mastication tend to prevent putrefaction. Acids have been employed as remedies for intestinal putrefaction, but it is difficult to administer them in sufficient amounts to serve the purpose without causing injury by the neutralization of alkali. Intestinal antiseptics are of doubtful efficacy.

LACTIC ACID AND INTESTINAL PUTREFACTION

In his book on the prolongation of life Metchnikoff advises strongly the ingestion of lactic acid bacteria for the prevention of intestinal putrefaction. Food has been preserved empirically from remote times by various means, one of these being the use of sour milk. The introduction of lactic acid bacteria has been attempted by various authors, some claim with eminent success. Thus Cohendy took cultures of a bacillus isolated from the Bulgarian fermented milk Yabourth or Yoghurt and reduced intestinal putrefaction materially. He found the Bulgarian bacillus in the feces for several weeks after discontinuing ingestion. Tissier employed cultures of Kozai's *B. acidi paralactici* with success. Herter has fed dogs with cultures of *B. coli* and *proteus* and found that putrefactive products increased in the urine. When feeding cultures of lactic acid bacilli, however, he found a reduction. Professor Herter has kindly informed me in a private communication that the lactic acid bacilli used in these experiments were not of the Leishmann type (*Strept. lacticus*) but probably Hueppe's *B. acidi lactici*.

The bacillus recommended by Metchnikoff and named by him *B. bulgaricus* has been studied in his laboratory by Bertrand and Weisweiler. They found that it produces an unusual amount of lactic acid, more in fact than is pleasant to taste. Metchnikoff's bacillus also digests the casein somewhat and decomposes some fat so that the taste is disagreeable. Therefore Metchnikoff advises the use of the paralactic bacillus (*Strept. lacticus*) in combination with the Bulgarian bacillus.

Recently Herter and Kendall have investigated the fate of *B. bulgaricus* in a monkey. They fed a monkey with bacillac, a beverage produced from milk with *B. bulgaricus* and a yeast. By feeding them this milk exclusively they were able to maintain an acid reaction throughout the digestive tract. They failed, however, in establishing the predominance of the Bulgarian bacillus in the ileocecal region. In the large intestine the number of these bacilli was relatively small. "Thus in the region characterized by most active putrefaction the lactic acid bacilli failed to establish themselves in relatively large numbers." The authors assume that the introduction of lactic acid bacteria appears to reinforce the enfeebled action of the normal intestinal lactic acid bacteria and to increase the amount of acid produced where it is insufficient or to reintroduce it where it is absent, thus assisting the host to throw off "wild races" of bacteria that may have become habituated in the intestinal tract.

Wegele has obtained good results by the use of Metchnikoff's sour milk. He thinks that the production of lactic acid *in statu nascendi* in the digestive tract is of importance more than the mere presence of lactic acid after consuming sour milk.

Wejnert claims that the number of bacteria in the feces is markedly reduced by the use of sour milk prepared with lactobacilline (*B. bulgaricus*, *Strept. lacticus* and a yeast). He stated that this reduction is more marked by using this milk than by using ordinary sour

milk. The evidence is not convincing, and since anaërobic bacteria were not searched for in his experiments the benefit claimed has not been sufficiently substantiated. He found *B. bulgaricus* in the feces but did not state what relation the numbers bear to the number of other bacteria in the feces.

We have seen that in order to produce lactic acid it is necessary to have carbohydrates present. We must remember that many bacteria are able to produce lactic acid from sugars, some species producing but small amounts, others larger amounts and some produce other acids than lactic acid. Lactic acid up to 1 per cent. in milk is palatable and pleasant, but if mixed with volatile acids, such as acetic, formic acid, etc., the taste becomes unpleasant. It is of importance, therefore, to select the kind of lactic acid bacteria with care. *Strept. lacticus*, the organism responsible for the natural souring of milk, produces about the right amount of palatability. In fact milk which has reached the stage of extreme activity of this organism is eaten by many people as a delicacy. When milk has solidified from the coagulation of the casein brought about by *Strept. lacticus* it contains these bacteria in almost pure culture and the lactic acid present is almost pure lactic acid. If milk is kept longer than this, molds decompose the casein, bringing about an alkaline reaction, so that putrefactive bacteria can multiply and putrefy the milk.

BUTTERMILK AND ITS MANUFACTURE

Buttermilk as we procure it in the market may contain various degrees of acidity and fat. If butter is made from sweet cream the buttermilk contains very little acid. Usually butter is made from cream containing 0.6 per cent. or more acid. The amount of fat in buttermilk depends largely on the thoroughness with which the churning process is carried on. The souring of the cream previous to churning is either the natural process or is brought about by the use of starters. In the natural process *Strept. lacticus* is the usual agent producing acidity, but may fail to give good results if excessive numbers of other bacteria are present. If starters are used unpleasant flavors are avoided, especially if commercial starters are used. These consist chiefly of cultures of *Strept. lacticus*, some being actually pure cultures. The cream may be pasteurized previous to inoculation with these cultures and thus the injurious influence of foreign bacteria avoided.

Buttermilk, therefore, is sour milk from which the butterfat has been partially removed. The churning process which breaks up the coagulated casein into extremely fine particles may influence the taste and aroma somewhat. A large proportion of buttermilk is manufactured by inoculating separator milk or skimmed milk with starters and churning after coagulation. During the investigation to be discussed presently ordinary sour milk was tasted by a number of persons who knew nothing of the origin and they invariably declared that they were drinking first class buttermilk. If milk is allowed to remain at room temperature for two to three days, then thoroughly shaken, a pleasant and wholesome beverage results, if proper care is taken to obtain a good grade of milk, as personal experiments have shown.

Should milk be pasteurized or boiled if sour milk is to be prepared by introduction of pure cultures? Our experiments have shown that the cooked taste is not eliminated by bacteria and is often quite prominent if the milk has been boiled. This certainly is a disad-

vantage. Pasteurization will furnish a more palatable product than boiling. Raw milk, however, is the most palatable. Since pathogenic bacteria are often found in milk it may be safer to pasteurize the milk previous to inoculation. Pasteurization and boiling kills vegetative forms of bacteria so that pathogenic bacteria are killed, but lactic acid bacteria are killed also and have to be supplanted by artificial cultures. Pasteurized and boiled milk also contain the spores of putrefactive bacteria, which, however, are suppressed if lactic acid bacteria are inoculated in sufficient numbers. On the whole, pasteurization is to be recommended unless the milk is produced under strict hygienic precautions.

PREPARATIONS INVESTIGATED

Of late years a number of firms have manufactured and marketed preparations for the home production of soured milk. At the suggestion of the editor of THE JOURNAL of the American Medical Association, I, assisted by Mr. T. H. Glenn,¹ have investigated some of these preparations with a view of determining their relative value as starters for sour milk beverages. The preparations were purchased in the open market and samples also were obtained from the manufacturers, in order to determine their stability. Bacteriologic examinations were made from the tablet or capsule directly and also from sterilized milk inoculated with the tablet or capsule. Sour milk was prepared with the respective preparations, following the directions given in the printed pamphlets accompanying the packages. In all, six series of experiments were made by inoculation of flasks containing 500 c.c. milk with the commercial preparation:

1. Inoculation of ordinary raw milk.
2. Inoculation of certified milk, containing 1,000 to 5,000 bacteria per c.c.
3. Inoculation of boiled ordinary milk.
4. Inoculation of boiled certified milk.
5. Inoculation of milk sterilized at 120 C. (248 F.) for twenty minutes.
6. Plating in glucose agar of the commercial preparations.

The amount of acid was determined daily for three successive days of each preparation, excepting the series inoculated into sterilized milk. This series was examined on the third day only. The acidity was determined by titration with a solution of Farrington's alkaline tablets. This method is perhaps not quite as accurate as titration with normal alkali, but for comparative purposes is sufficiently reliable. The sterilized milk was titrated but once in order to avoid every possible chance of contamination. Plates were prepared in 1 per cent. glucose agar from all flasks and a number of colonies transferred from each plate to slant agar, litmus milk and glucose agar. A series of butterfat determinations were made by the Babcock method in order to determine whether any fat was lost during the fermentation. Notes in general were made as to the appearance, consistency, taste and odor of each of the flasks. All fermentations were allowed to proceed at an average temperature of approximately 21 C. (70 F.).

In order to eliminate the personal equation a series of samples were tasted by three physicians independently. The samples prepared for this test were sent in 200 c.c. bottles and each bottle numbered, so that the experimenter did not know what he was tasting. Numerous similar tests were made by asking persons working in

the laboratory to give their opinions, all of these tests being made with the same precaution, viz., keeping them in ignorance of what they were tasting.

In addition to the above described experiments I prepared three capsules, one from sour milk, another from a pure culture of *Strept. lacticus*, and a third from a mixture of *Strept. lacticus* with a yeast isolated from one of the market preparations. These capsules were subjected to the same tests as the others. The results of these experiments will be given by taking up a discussion of the findings of each separate preparation first and then by discussing the results as a whole.

The following account of the investigation of commercial preparations is a summary of detailed results of the experiments. Since there was no marked difference between the samples bought in the open market and those obtained from the manufacturers, only one of each will be described. The numbers refer to the various persons who have given their opinions as to taste, etc. When there is no mention of butterfat no change in percentage was noted.

LACTOBACILLINE

This preparation (made by the Franco-American Ferment Co., New York) is put up in small brownish tablets, forty-eight in a box, and also in powder form. It has a decidedly acid taste. Micro-organisms found in the tablets: *B. bulgaricus*, *Strept. lacticus*, an acid-forming staphylococcus, *B. subtilis*, and a yeast. Boiled milk inoculated showed *Strept. lacticus* in overwhelming numbers and large numbers of the yeast cells. *B. bulgaricus* was in relatively small numbers. The degree of acid formed in three days was 0.82 to 0.85 per cent. (lactic acid). The final product had a generally good taste and consistency.

Samples tasted from a preparation made with raw certified milk were commented on as follows:

1. Taste good and creamy.
2. Rather unpleasant, slightly bitter.
3. Disagreeable; not due to acid.
4. Too acid, disagreeable.

The same prepared with boiled certified milk:

1. Generally good, boiled taste.
2. Sweet and somewhat nutty flavor, also like boiled milk.
3. Slight acidity, slight sweetish flavor.
4. Milk scorched, sweetish flavor, not at all like buttermilk.

With inoculated sterilized milk: Taste was not pleasant. The predominating micro-organisms were *Strept. lacticus* and a yeast.

FERMENLACTYL

This preparation (made by the Anglo-American Pharmaceutical Co., Ltd., London, Paris and New York) comes in small yellowish tablets which taste like malted milk, six tablets in a bottle and eight bottles in a box. The organisms found in original preparation: *B. bulgaricus*, *Strept. lacticus*, a yeast and alkali forming bacteria probably *B. subtilis*. Boiled milk inoculated showed *Strept. lacticus* and yeast cells in large numbers. In sterilized milk a staphylococcus, *B. bulgaricus* (not in large numbers), *Strept. lacticus* and yeasts were found. The degree of acid after three days varied from 0.80 to 0.89 per cent.

In certified milk, both raw and boiled, the taste and appearance were good on the whole.

In ordinary raw milk: "Sweet, creamy and pleasant acid" was the verdict of three individuals.

In boiled milk the opinions as to its flavor were unanimous, that it was pleasant but the boiled milk taste was present.

In sterilized milk the acidity after three days was only 0.48 per cent. Micro-organisms present were: *B. bulgaricus*, *Strept. lacticus*, a staphylococcus, and yeast cells, *Strept. lacticus* was the most prevalent.

1. This work was done in the Bacteriologic Laboratory of the University of Chicago. I acknowledge my indebtedness to Prof. E. O. Jordan for permission to use laboratory facilities freely.

KEFILAC

This preparation (made by the Kefilac Co., Atlanta, Ga.) comes in large white oval tablets, sixteen in a tin box. Almost tasteless. Micro-organisms in the tablets: *Strept. lacticus*, *B. aerogenes*, a chromogenic torula, alkali forming bacilli (*B. subtilis*), a yellow pigment forming bacterium and a few organisms resembling *B. vulgaricus*. Acid formed after three days, 0.79 to 0.88 per cent. The final product had a generally pleasant taste and consistency. Some gas was formed in the curd.

Opinions as to taste, etc., in ordinary raw milk: Sweet, creamy and pleasantly acid; the verdict of three individuals.

In boiled milk the opinions as to its flavor were the same as in raw milk except that the cooked taste was noticeable.

In sterilized milk *Strept. lacticus* and yeasts were prevalent.

YOGURT

This (made by the Yogurt Co., Battle Creek, Mich.) is put up in both capsule and tablet form. The tablets are soft and crumble readily, are light brown and of a floury taste. The capsules are tasteless. The original preparation contains large numbers of bacteria, among which *Strept. lacticus* was found in large numbers, also *B. subtilis*, *B. aerogenes*, *Oidium lactis* and a yeast. The amount of acid formed after three days was 0.64 to 0.90 per cent. The final product varied considerably, in some cases being quite pleasant and creamy, in others rather disagreeable. Gas was found frequently in the curd.

Opinions as to taste, etc., in certified milk, both raw and boiled, the taste was disagreeable, much gas formed and a great deal of whey separated after three days. Sometimes a bitter taste was noticeable.

In ordinary raw milk:

1. Sweet, creamy and slightly acid flavor.
2. Slight acid flavor, not as palatable as some others.
3. Pleasant acid flavor, tastes like buttermilk.

In ordinary boiled milk:

1. Least acidity of all samples tasted, quite strong, of a peculiar nutty (boiled) flavor.
2. Least acid, somewhat sweetish and disagreeable taste.
3. Boiled milk flavor, not acid, sweetish, disagreeable.

In sterilized milk: Here the taste was quite pleasant and *Strept. lacticus* and yeasts were predominant.

LACTONE

This preparation (made by Parke, Davis & Co., Detroit, Mich.) comes in small white tablets in a bottle. Organisms found in the original preparation: *Strept. lacticus*, a gas-forming bacillus (*B. aerogenes*) was found occasionally, not in all tablets examined, and a non-gas-forming bacillus. According to directions one-third of a quart of water was added in all experiments excepting those in which sterilized milk was used. The butter was consequently reduced to about 75 per cent. of the original content (in one case from 3.4 in the milk to 2.5 in the buttermilk). The amount of acid formed was from 0.69 to 0.92 per cent. Whey separated readily, always on the third day and mostly on the second day. In certified milk, both raw and boiled, the taste was plainly sour, with little flavor.

Opinions as to taste, etc., in raw ordinary milk:

1. Weakly acid, less flavor than any.
2. Weakly acid, no other flavor.
3. Slightly acid, no particular flavor, not at all like buttermilk.

In ordinary boiled milk:

1. Creamy, slightly acid, the peculiar nutty (boiled) flavor.
2. Acid flavor, with slight sweet flavor.
3. Peculiar acid flavor, not like buttermilk at all.

In sterilized milk: Only 0.31 per cent. acid was formed after three days, few bacteria, bitter taste, *B. subtilis*, *Strept. lacticus* (not numerous) and staphylococci.

PREPARATION "X"

This consisted of the dried curd of milk, which had soured by the natural process for four days at room temperature. After being put up in capsules the appearance was yellowish like Yogurt capsules and the taste was somewhat cheesy. The

acid formed in milk after three days was from 0.80 to 0.91 per cent. In certified milk, both boiled and raw, the taste and consistency were good and whey separated only in one sample on the third day.

Opinions as to taste, etc., in boiled certified milk:

1. Slightly acid flavor, nutty (boiled) flavor.
2. Purely acid, not unpleasant.
3. Sweetish flavor, too thick.

In sterilized milk: Taste good, like buttermilk. Acidity, 0.85 per cent. Micro-organisms, *Strept. lacticus* and yeasts.

PREPARATION "XX"

This was made by inoculating sterilized milk with a pure culture of *Strept. lacticus* isolated from market milk and a yeast from Lactobacilline. This preparation produced a fine buttermilk taste with an exceptionally delicate flavor and was favorably commented on by five persons. The curd was smooth, no whey separated for three days and the acidity was extremely pleasant. This preparation was substituted for fermentalactyl by a gentleman who had used the latter for several weeks. According to his judgment "XX" was preferable.

NATURALLY SOURED MILK

A sample of this was also tested by three persons, with the following results:

1. Pleasant and creamy with palatable acidity.
2. A little too much acid to be pleasant.
3. Pleasant acid flavor. Tastes like buttermilk.

This preparation was ranked among the four best samples out of twelve by one experimenter. *Strept. lacticus* was present in almost pure culture.

STERILIZED MILK

This was inoculated with a pure culture of *Strept. lacticus*. A good smooth curd was formed and five out of six persons tasting this thought it was genuine buttermilk.

It was interesting to note the varying rapidity of acid formation in these experiments. If certified milk or boiled milk was inoculated the acidity developed more slowly than if raw ordinary milk was used. In raw ordinary milk the high point was reached on the second day or nearly so and then remained stationary. In certified and boiled milk the high point was reached on the third day, while on the second the acid was either little more than on the first day or but slightly higher.

It is evident also that there is a parallelism between the process of fermentation of milk inoculated with the preparations discussed and the natural process. The products in both cases are quite similar. The great prevalence of *Strept. lacticus* is a leading feature. The amount of acid produced by this organism in pure culture is about the same as the amount produced by the use of these preparations.

The preparation of milk by the use of Fermentalactyl and Lactobacilline is rather a difficult matter in the household. In hospitals and laboratories there is little difficulty, but since the use is chiefly intended for the house it seems rather difficult to observe directions closely. The temperature for the successful growth of *B. vulgaricus* is higher than ordinary room temperature so that the benefits claimed for the use of this organism are hard to obtain. In Bulgaria, where the original Yabourth or Yogurt is largely prepared, great care is taken to keep the inoculated milk warm. Previous to inoculation with the Bulgarian ferment (Mava) the milk is boiled down to half its volume and inoculated at a temperature of about 45 C. (113 F.).

SUMMARY

The usefulness of lactic acid or lactic ferments as curative agents for intestinal putrefaction is still problematical. Much evidence in its favor has accumulated of late years and it is to be desired that exact scientific

investigations of a decisive character will be undertaken.

The evidence in favor of the use of *B. bulgaricus* as a lactic acid producing organism for the purpose of arresting intestinal putrefaction is not convincing. The association of *Strept. lacticus* with the Bulgarian bacillus leaves doubt which one of the two organisms is the one responsible for the beneficial effects claimed. The Bulgarian bacillus produces a disagreeable taste in milk by decomposing some of the fat and the addition of *Strept. lacticus* is universally practiced to overcome this difficulty.

The experiments which have been reported in regard to finding the Bulgarian bacillus in the feces are incomplete in so far as no statements are made in regard to the number of these bacilli found in relation to other intestinal bacteria, especially in relation to intestinal streptococci.²

Assuming that the presence of free lactic acid in the digestive tract is beneficial, it has not been definitely shown that lactic acid is actually produced in considerable quantity by the presence of lactic acid bacteria in the intestines. The evidence is decidedly in favor of the introduction of sour milk, or pure cultures of lactic acid bacteria in connection with a diet in which milk is a prominent feature. Lactic acid forming bacteria are constantly present in the digestive tract, and we have no convincing evidence that the additional introduction of lactic acid bacteria is of benefit.

There is so far no convincing evidence that sour milk prepared with commercial cultures is preferable to naturally sour milk, as far as the therapeutic effect is concerned. It seems advisable, however, to boil or pasteurize milk if good reliable "certified" milk is not obtainable, and if this is done an artificial starter is necessary. For this purpose either one of the above discussed preparations may be used, or one of the commercial butter starters. In those countries where sour milk is generally used the starter consists in a small amount of the previously prepared milk. This can be done with any other starter. A small amount of the prepared sour milk may be used for inoculation of the next lot after this has been boiled or pasteurized.

In spite of Metchnikoff's statement that the presence of yeasts is detrimental, the commercial preparation investigated, excepting only lactone, contain yeasts in large numbers. Undoubtedly some alcohol is produced by these and probably some esters which impart aroma to the sour milk. Yakhourth of the Bulgarians, kefir, koumiss, leben and all the other fermented milk beverages contain alcohol-forming yeasts, although the amount produced is very small.

Although the sense of taste is largely a matter of personal judgment and idiosyncrasy, it is a matter of no inconsiderable importance. A product of pleasant taste is surely of higher value than one which is disagreeable, and this point should not be neglected. The results of the samples tasted are fairly consistent and a careful perusal will show that there is a decided preference in some cases. The taste produced by the activity of *Strept. lacticus*, perhaps with additions of an aroma-producing yeast, is without doubt the most preferable and evidence in favor of the use of this organism must of necessity be of great value.

2. Recently Sewerin has examined a series of seven samples of Lactobacilline in Germany and was unable to find *B. bulgaricus* in any one

NIGHT CAMPS FOR THE TUBERCULOUS

THE UTILIZATION OF THE CONSUMPTIVE'S LABOR POWER

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In much of our tuberculosis work in municipal and state fields it seems to me that we are open to the criticism applicable to the man who, without telling the naked how to get food and raiment, constantly exhorted them to be fed and clothed. Without telling the tuberculous man how to find maintenance for himself and, more especially, those dependent on him, we exhort him to take the cure for longer or shorter periods.

Those we do provide with maintenance we frequently demoralize with idleness in our sanatoria. It merits objection, it seems to me, that many in charge of the disposition of funds in state and charitable institutions for the tuberculous frequently pauperize by failing to use the potential energy of the patients of such places by compelling them to make some return for benefits. Yet there is scarcely a sanatorium in the country that could not, with benefit to the patient, utilize 33 per cent. of the total potential energy of those resident in the institution. Some remuneration for the work could justly be made in board or money. This is more true to-day when, with little foresight from the standpoint of prevention, the patients admitted to these places must be those with incipient tuberculosis, who in the main grow fat, vigorous and lazy in a few weeks.

If the statement that *jedermann hat am Ende ein bisschen Tuberculose* be true, then, of course, for every one who knows that he is affected with tuberculosis there are one hundred who never know they have it, yet continue working throughout their lifetime and seem none the worse for it.

Since long before the excellent systematic work outlined by Patterson at Frimley, or even before the differences of Brehmer and Detweiler on the question of exercise, we are familiar with the records of patients who, under advice, or contrary to advice, rode horseback or took active exercise in the open air and yet made excellent recoveries.

I fear that, being overwhelmed by the number of yearly deaths, we are apt to forget, especially in our dispensary work, the important lessons to be learned from such facts as the above.

My attention has been called to this lately in making provision for those whom, by our present ability to make early diagnoses, we find by examining the households of those consumptive patients reporting at the dispensary. These cases are unsuspected by the individuals themselves and are of varying degree of intensity from incipient to far advancement. The patients have in the past been *en masse* urged to take the cure in a way which is obviously impossible when we stop to think. We have frequently had in the hospital in Pittsburgh from three to five members of one family.

I do not wish my remarks to be taken as in any way bearing on febrile cases, although I have frequently known cases of moderate fever up to 100 of evening temperature in which the patients improved only after being given one hour or two of light work daily. The best law to follow, of course, is that patients with tuberculosis should be treated by the physician, as nearly as possible, individually, both psychically and physically, as if there were in each case a separate malady.

My reference is more especially to the following groups of cases which every properly run dispensary must yield in comparatively large numbers:

1. Patients not conscious of their lesions, (a) with open lesions, (b) with closed active lesions, and (c) those with closed inactive lesions, who, from their existing social condition, must continue working. In this group are included the majority of those who are found by examining the households of the tuberculous who report at the dispensary. Many of these refuse to stop work; many can not; many need not. I could enumerate instances in great number, but I need not, as all who have to do with the tuberculous are only too familiar with such cases.

2. Patients who are conscious of their lesions but who will not, or from their economic circumstances feel that they can not stop their work. These are too often young women, each the sole support of a widowed mother, or mothers whose absence in the daytime would break up the household. There are also many who can not be persuaded of the seriousness of their sickness; feeling able to work, they are often induced to continue earning in order to save property on which they have already paid a good deal.

3. Patients who are conscious of their lesion, and who are not working but are able to work. Among these are (a) those who have been frightened by what may be called the defects of our modern crusade, (b) those whose disease has been arrested but who have been demoralized by our present sanatorium methods, and (c) many who have grown accustomed to the support of others at home and now refuse to work. These are able to maintain their position through the fear which they are able to infuse into those at home.

From the foregoing groups are many who, if they feel that they are under supervision, are willing to work. Many can be induced to accept for a time the advantages of sleeping out at night with two meals daily to help them in recovery. Many under the jurisdiction and moral suasion of a hospital do better than under the influence of poor home surroundings. There are also many who are boarding and whom the boarding-house refuses longer to keep, etc.

For all of these we have found a night camp to be a very feasible and valuable adjunct to the work of the Tuberculosis League, and recommend it to other municipal organizations interested in this work.

For this work in the past we have utilized simply the beds in the hospital shacks and not a separate department, as the name might indicate. The patients report at the end of the day's work; their temperature and pulse are taken and recorded when they retire to their reclining chairs or bed to rest until supper. After supper they are at rest until bedtime, 9 p. m., when they sleep out of doors. The time of their return to the hospital varies in compliance with the requirements of their work. The work is arranged with the employer to suit the case as nearly as possible. In the morning they rise, dress, have their temperature and pulse recorded, have their breakfast and go to work. They arrange for lunch out of the hospital. Chest examinations are made and recorded as with all cases in the hospital. The advantages to the patient are evident: constant medical supervision and advice, two nourishing meals daily, compulsory rest and open-air sleeping facilities.

The cost of maintenance is difficult to arrive at under the present management, as it is included with the general hospital per capita maintenance, but it can not be much less than ordinary hospital maintenance. I look on this, however, as of minor importance. The basis of our work has been to cure and prevent as much tuberculosis as possible with the least amount of pauperization of the patients. The patients of the night camp are supposed to pay what they can, which amount we help them to arrive at after gaining a knowledge of their liabilities and earnings. In many cases it is nothing; in no case is it very much.

Of more importance is the economic value of the camp. It saves the labor of the individual to the state, often prevents the necessity of the state or municipality providing for others dependent on the patient, and, best of all the patient himself frequently makes rapid progress and arrest of his disease.

Its sociologic value is of equal importance. We are more and more beginning to grasp the truth that the tuberculosis problem is not concerned with that malady alone, but is a crusade which includes a reconstruction of the whole social fabric of a municipality. In the present instance the night camp preserves the self-respect of the individual. He often attracts the admiration of his associates and furnishes an example of heroism which is growing rarer in this past few years among our tuberculous. It takes real heroism to admit to your associates that you are tuberculous. The night camp, besides, is a very potent instrument in appealing to those most valuable citizens, the charitably inclined. These are so often fooled that they become skeptical of good done with their contributions; but where they see an effort being made to use funds in such a way as this, it has some power in restoring their confidence.

Perhaps of maximum importance is the educational value of the night camp: first, on the patient, who learns the methods of prevention of spread of tuberculosis and disposal of sputum; second, on all with whom he comes in contact when he can be persuaded to follow the teaching with which he is made familiar; and third, in overcoming the sad state of affairs, a product of our method of crusade, the fear of employers and employes of even the careful consumptive. I have faith that through the night camp much will be done to help the hardships which now are so commonly thrust on the consumptive, preventing often his doing the very things asked of him. You and I, his teachers, are too often guilty, unconsciously perhaps, of sharing this popular fear which does so much to defeat our ends.

Clean Milk.—John Ferguson, in the *Canada Lancet*, states that the slaughter of the innocents through the milk can have far exceeded the slaughter wrought by pestilence and war. We must aim for the following conditions: 1. Healthy cows and the feeding, stabling and milking of these carried on according to the best methods. The care of the milk should be such as maintains the purity of the milk until it reaches the consumer. This is certified milk. 2. Healthy cows and as many safeguards as can be thrown around the milk supply, but yet not such as to keep it up to the standard of certified milk. In such cases there is the need for pasteurizing the milk. 3. Unhealthy cattle and careless, dirty methods of handling the milk should be mercilessly condemned and put a stop to wherever found. Milk that has been pasteurized is not so good for the feeding of infants and children, as milk that is secured under the certified plan. It is much better, however, than bacteria-laden milk; and for the time, we must accept the lesser of two evils.

THE ECONOMICS OF THE GRADUATION OF
MEDICAL CANDIDATESA. L. BENEDICT, M.D.
OMAHA

The present article, suggested by the excellent statistics of medical education published annually by THE JOURNAL, is a cold-blooded statistical study of certain problems of supply and demand, bearing quite directly on the ultimate bread-and-butter problem of the profession. Let us start with some statistics from the U. S. Census:

Year.	Physicians.	Population of U. S.	Average clientele.
1870	62,383	38,558,371	618
1880	85,671	50,155,783	585
1890	104,805	62,622,250	597
1900	132,002	76,303,387	568
1910	160,000	91,500,000	572*

*Estimate, see below.

Roughly speaking, the ratio of physicians to population is about the same as of white to red corpuscles in the blood, but with a moderate leucocytosis.

In the thirty years from 1870 to 1900, the population nearly doubled. In the same period the number of physicians more than doubled; in fact, it increased to about 212 per cent. of its former number. To put it in another way, the average physician had a clientele which was less than in 1870 by 50 persons, or about 10 families. Not only was the clientele smaller, but it included a larger proportion of persons unable or unwilling to pay for services, and it was healthier, notably in regard to tuberculosis, typhoid and pregnancy and the sequelæ of the last disease. So far as can be judged, fees have not increased except for surgical and other special procedures; but these are expected to and usually do prevent the chronic pelvic and other forms of invalidism which formerly made many persons veritable gold mines for the profession. The purchasing power of the dollar in 1900 was probably just about that of the debased current dollar of 1870.

It is plain that, to maintain the same ratio between the medical profession and the total population, the former must increase at a rate which is the sum of its own death rate and the net rate of increase of the non-medical population. As the population is so many times the number of physicians, the non-medical population may be regarded as practically the same as the total population. For the year 1890 the mortality of physicians was 19 per thousand. For the year 1900 I have not been able to find a definite statement, but the general mortality for males over 25 years old was a trifle over 21 per thousand for the registration area. The percentage of physicians under 25 was 5.4 per cent. for 1890 and almost exactly 5 per cent. for 1900. Since then it has unquestionably decreased both on account of the increased amount of preliminary education required of medical matriculants and the addition of a year to the medical course which has fallen within the present decade for probably the majority of schools, and also because the members of the profession already graduated have been increasing in years, while the relative number of new graduates has fallen, except for a couple of years. Moreover, a death rate estimated by ordinary census statistics is less liable to be complete than when estimated by the returns of a "registration area."

The American Medical Association reports place the death rate for the profession at 14 to 15 per thousand. These are probably defective on account of the liability

to lose track of physicians in retirement after they have ceased to practice and to take an interest in medical organizations.

The rate of increase of the general population has gradually fallen as follows:

Years.	Per Cent.
1870-1880	30 +
1880-1890	24 +
1890-1900	22 —
1900-1910	20 — (estimated)

As we are dealing with what are virtually problems in compound interest, an increase of 30 per cent. for 10 years obviously means something less than 30 per thousand for one year. Thus, to keep the average clientele of the physician at the same point, an annual graduation of something less than 5 per cent. would have been permissible in 1870; of about 4.4 per cent. in 1880; of about 4.2 per cent. in 1890; of about 4 per cent. in 1900. As a matter of fact, the graduates of 1880 numbered 3,241, 3.8 per cent. of the total number of physicians, and the average clientele increased by 12 in the next decade. In 1890 they numbered 4,454, 4.2 per cent., and the average clientele fell by 19 in the next decade. But very little dependence can be placed on the results of a single year, nor can the census of physicians for a decennial year be taken as a basis for computations for successive years, and, as a matter of fact, the graduation classes have varied considerably and tended to increase disproportionately until 1904, when the high-water mark of 5,747 was reached.

For comparison with the table of increase of the general population it may be stated that the medical profession increased 37 per cent. from 1870 to 1880, with a decrease in average clientele of over 5 per cent.; 22 per cent. from 1880 to 1890, with an increase in average clientele of over 2 per cent.; 25 per cent. from 1890 to 1900, with a decrease in average clientele of over 3 per cent. So long as the differences in percentage rates are small the clientele will increase or decrease by just about the difference between the percentage increase of the medical profession and the total population—of course, inversely.

The estimate of the numbers of the medical profession in 1910 given at the beginning (160,000) was reached by striking an approximate average between the rates of 22 and 20 per cent. increase. On page 607 of THE JOURNAL (Aug. 15, 1908), however, there is given a list of the graduates since 1900, whose numbers gradually rose to 5,747 in 1904 and have since fallen to 4,741 for 1908. Even an unprecedented increase in medical matriculants can not cause an increase in graduates before 1912, and the estimate of 4,700 graduates has been adopted for each of the next two years. By calculating the mortality of the profession at 21 to 1,000 for 1900, subtracting this from the total and adding the graduates for 1901, and so on for each successive year, the conclusion has been reached that in 1910, the profession will number 154,030. It will be interesting to learn how nearly this estimate coincides with the next census report. If this estimate and that of the total population, 91,500,000, prove to be approximately correct, the average clientele will have increased to 594.

From the experience of various European countries, we know that, without any particular effort to systematize practice, or falling off of the incidence of disease, one physician can easily care for a population of 1,000, and it may be said that if this ratio could be reached,

most of the economic problems confronting the medical profession, and many ethical ones which always arise under the temptations of poverty, would be solved, provided, of course, that there were no corresponding decrease in the demand for medical services.

How slowly any such ratio as 1 to 1,000 can be reached under any conceivable practical conditions may be illustrated as follows: If the rate of increase of total population falls only 2 per cent. more, following the analogy of the decades since 1880, we shall have something like 108,000,000 inhabitants in 1920. The annual mortality of the medical profession in 1910 will be about 3,234. More than this number of physicians was graduated in 1880 and it is scarcely possible that, even by continuing to raise the medical standards, coalescing colleges and discouraging matriculants, the average graduation list can be still further diminished so as merely to keep the profession at its present numeric strength. But suppose that this result could be reached; the average clientele would be increased by only about 10 annually or by direct division of the expected population number in 1920 by the present estimated number of physicians the clientele at that time would be almost exactly 700.

Allowing for a decennial increase of population dropping by 2 per cent. for each decade, the medical clientele would reach 811 in 1930 and 925 in 1940. In other words, we are about thirty-five years in advance of the requirements. This means not only individual average hardship for the medical profession, but a serious economic problem for the whole country.

Clinical Notes

A MICRO-ORGANISM WHICH APPARENTLY HAS A SPECIFIC RELATIONSHIP TO ROCKY MOUNTAIN SPOTTED FEVER

A PRELIMINARY REPORT *

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Since the spring and summer of 1906, bodies which I have referred to in my notes as "diplococcoid bodies," and sometimes short bacillary forms, have been found with considerable constancy in the blood of guinea-pigs and monkeys which were infected with Rocky Mountain spotted fever. They have also been seen in the blood of man but not so frequently. Much more time has been spent on the blood of the experimental animals than on that of man in view of the fact that it could always be obtained in fresh condition.

The form most commonly found is that of two somewhat lanceolate chromatin-staining bodies, separated by a slight amount of eosin-staining substance. The preparations of Giemsa, as furnished by Grüber, has been used almost exclusively, and with variations in the technic the intermediate substance may stain faintly blue.

In spite of the constancy with which these bodies were found, it did not seem justifiable to claim that they represent the microparasite of the disease, for two reasons: (1) the very complex morphology of the blood, especially in febrile states, when various cells and

probably their nuclei are subject to unusual disintegration; (2) because of my inability to cultivate a micro-organism of this character from infected blood by the use of ordinary and some unusual culture media, under various conditions of cultivation, or by other means to obtain it in satisfactory concentration.¹

THE BACILLUS IN THE TICK

Although infected ticks had been examined previously in a more or less cursory manner, their systematic study was not undertaken until recently. In the pursuit of this work advantage was taken of the fact that the disease is transmitted by the infected female to her young through the eggs, as described in a previous report. A repetition of these experiments in the winter of 1907-8, with the help of Dr. Maria B. Maver, resulted in such transmission in 50 per cent. of the ticks used, the fact being determined by allowing the larvæ to feed on normal guinea-pigs. This second series has not been published heretofore.

Female tick No. 40, a *Dermacentor*, from Montana, had produced fatal infections of spotted fever in guinea-pigs 1740 and 1764. A number of eggs from the first day's laying were crushed individually on cover glasses, fixed in absolute alcohol, and stained with Giemsa's stain. Each egg was found to be laden with astonishing numbers of an organism which appears typically as a bipolar staining bacillus of minute size, approximating that of the influenza bacillus, although definite measurements have not yet been made. Various forms are seen depending on the stage of development and the arrangement in which two or more may be found. It is very common to find two organisms end to end, with their poles stained deeply and the intermediate substance a faint blue, resembling a chain of four cocci. When the chromatin is not yet sharply limited to the poles, the somewhat lanceolate forms so often recognized in the blood are seen. Not infrequently delicate bacilli with a uniform distribution of the chromatin are found. These are all interpreted as stages in the evolution of a bipolar organism. They are present in varying numbers in different eggs, but as a rule they are surprisingly numerous, and in some instances they would certainly count into the thousands. Many faintly staining, apparently degenerate forms are encountered.

Examination of the eggs of three dermacentors from Idaho (different specifically from the Montana dermacentor), which were infected from the guinea-pig, showed the presence of the same forms (Ticks 5, 7 and 9).

Conference with zoologic scientists who have made a particular study of the structure of eggs brought out the fact that such bodies are not known as a constituent of the egg of any species of animal.

Although it has not yet been possible to examine the eggs of ticks which are known to be free from spotted fever, the equivalent control has been made through a comparison of the visceral organs of infected and uninfected ticks. The salivary glands, alimentary sac and ovaries of infected females are literally swarming with exactly similar micro-organisms. On the contrary, they appear to be entirely absent from the viscera of the uninfected tick, both male and female.

AGGLUTINATION REACTIONS

The most striking evidence of the probable etiologic relationship of this organism to spotted fever is found

* From the Pathological Laboratory of the University of Chicago

1. Mr. P. G. Heinemann assisted in an extensive series of culture experiments in the spring of 1907.

in the positive outcome of agglutination tests. Fortunately it is so numerous in the eggs that a bacterial emulsion of reasonable concentration for agglutination tests can be made by crushing forty to fifty eggs in about 0.05 c.c. of salt solution. The material is so scant that only the microscopic method could be used. The preparations were made as hanging drops, incubated for two hours, dried, fixed with absolute alcohol and stained.

The serum of the normal guinea-pig either causes no agglutination at all, or at the most produces only slight agglutination in proportions of 1 to 1 and 1 to 9. Dilutions higher than this cause no agglutination. In testing the agglutinating powers of immune serums, three animals which had been infected from different sources and had recovered were used. One (1751) had been infected with a dermacentor from Idaho; another (1692), with a strain handed down direct from guinea-pig to guinea-pig for nearly three years without the intervention of ticks, the original infection having been obtained from the blood of man; the third (1757) with a strain kept in the same way since last spring. Graded dilutions, beginning with 1 to 1 and going as high as 1 to 200, were used in the different series, with the striking result that a complete agglutinating power was present in the three immune serums in dilutions up to 1 to 160. It was somewhat less in a dilution of 1 to 200. The highest dilution which will cause clumping has not been ascertained.

No fresh immune serum from man is at hand, but tests were made with three specimens which are about five, seven and nine months old respectively. They have been preserved in the ice chest with the addition of 0.3 per cent. of chloroform. The peculiar phenomenon of failure to agglutinate in concentrated solution was noted with all three. With the oldest serum no agglutination occurred until the dilutions of 1 to 160 and 1 to 200 were reached, when incomplete clumping was produced. With the second there was no agglutination in the dilution of 1 to 1, distinct clumping in 1 to 10, 1 to 20 and 1 to 40, with little or none in higher dilutions. In the serum of five months standing the reaction was absent in the dilutions of 1 to 1, 1 to 10 and 1 to 20, positive but not complete in 1 to 40, 1 to 80 and 1 to 120, with very little clumping in 1 to 160 and 1 to 200. Normal human serum caused clumping in a dilution of 1 to 1, a very slight amount in 1 to 10, and none at all in the higher dilutions.

The failure of the immune serums from man to agglutinate in concentrated solutions, whereas they did so in higher dilutions, is taken as an example of the action of the so-called proagglutinoids. As explained by Ehrlich's theory, this consists in the occupation of the bacterial receptors by inactive agglutinin which exceeds the active agglutinin in its affinity for the bacteria. With higher dilutions of the serum the agglutinoids are so diluted that they do not completely occupy the bacterial receptors, thus affording a point of attack for the active agglutinin, unless the latter has been eliminated by extreme dilution. This is well known as a property of old agglutinating serums.

BACILLI IN INFECTED SERUM

As a means of concentrating the organisms in the serum of the infected guinea-pig the following experiment was performed: Three cubic centimeters of fresh infected serum were diluted with an equal amount of salt solution, and to this was added 0.3 c.c. of an agglu-

tinating serum from the guinea-pig. The mixture was placed in the incubator for two hours and then centrifugated for about ten hours at a speed of 1800 revolutions. All but the merest drop was then pipetted off and stained preparations were made of the sediment. Examination showed the presence of a moderate number of forms which are identical in appearance and size with those often recognized in ordinary smears of infected blood, and also with the "diplococcoid" forms seen in the egg of the infected tick. No such bodies were found in a control tube of normal serum.

The evidence pointing to this organism as the causative agent in spotted fever, though not complete, is of a striking character. In so far as I know it would be an unheard-of circumstance to obtain such strong agglutination with an immune serum, in the presence of negative controls, unless there were a specific relationship between the organism and the disease. In favor of the specific relationship in this case are also the presence of the organism in large numbers in infected ticks and in their eggs, its absence from uninfected ticks, and the presence of similar forms in the blood and serum of the infected guinea-pig.

Morphologically the organism is a bacillus and somewhat pleomorphic as described. Its resemblance to the bacilli of the hemorrhagic septicemias is striking, and in this connection it is important to note that spotted fever is a hemorrhagic septicemia. It has not been cultivated, although work with this end in view is in progress.

I have devised no formal name for the organism discussed, but it may be referred to tentatively as the bacillus of Rocky Mountain spotted fever. A further study of its characteristics may suggest a suitable name.

That a bacillus may be the causative agent of a disease in which an insect carrier plays an obligate rôle under natural conditions may be looked at with suspicion in some quarters. Yet, even without the evidence in this case, it would seem to be unscientific to be tied to the more or less prevailing belief that all such diseases must, on the basis of several analogies, be caused by parasites which are protozoon in character.

Further study of the relationship of the bacillus to the disease is being carried on and will be reported at a future date, together with illustrations and a more detailed account of its characteristics.

A CASE OF FORMALIN POISONING

O. P. HUMPSTONE, M.D., AND WILLIAM LINTZ, M.D.
BROOKLYN

History.—Mrs. E. E., aged 33, was admitted to private ward of the Jewish Hospital, Oct. 16, 1907, suffering from ulcerative colitis, and was treated for eighteen days by high rectal irrigations of silver nitrate 1 to 1,000 solution. By mistake, on October 27, at 8 a. m., two ounces of formalin solution to a pint of water (about 12.5 per cent. strength) was used for a rectal irrigation. After receiving this solution the patient cried out that it felt as though a red hot iron had been put in the rectum and that she was dying.

Symptoms.—The pain in the rectum and abdomen was excruciating. There was marked pallor and coolness of the skin and mucus membranes, the face was expressionless. The eyes were dull and staring; the pupils were widely dilated and reacted very little. The heart action was delayed, irregular and feeble, the pulse being hardly perceptible. The respirations were irregular and sighing; deep breaths alternating with shallow inspiratory efforts. The mind was dull; cerebration was slow and questions were answered tardily and unwillingly.

The temperature was slightly subnormal. The clinical picture was one of collapse.

Treatment.—The patient was given one-half ounce of whiskey and 1/40 grain of strychnin hypodermically. Hot water bottles and blankets were applied to the body. A thorough high rectal irrigation of about a gallon and a half of saline solution was employed at once. As a result, the burning pain in the rectum and abdomen was ameliorated, the pulse became stronger, the temperature returned to normal in about one hour and the mind cleared.

Later Symptoms.—Three and one-half hours later violent retching and vomiting set in. The vomited matter was dark green, of offensive odor, alkaline in reaction, and free from acids and showed the presence of blood both microscopically and by the benzidin test. Diarrhea associated with violent tenesmus kept the patient on the bedpan almost continually for the next twenty-four hours. The stools were dark red in color of a syrupy consistence, had the odor of formaldehyd and contained pus blood, shreds of intestinal mucus membrane, fibrin and mucus in large quantities. The lips and tongue were dry and parched, thirst was excessive, the skin was dry, harsh and wrinkled, and later covered with a cold perspiration. The eyes were dull and the patient suffered from severe headache and vertigo. Marked asthenia was present. After the initial fall, the temperature, pulse and respiration gradually rose till evening, when, eighteen hours after the injection, the temperature rose rapidly to 104.2 F., pulse to 176, and respirations 36. A hypodermoclysis was given and it effectually restored the lowered body fluids, and tided the patient over the period of reaction. As the patient had not voided urine she was catheterized and two ounces of urine loaded with albumin, casts, and blood were obtained. For the next twenty-four hours there was almost complete anuria, the bladder being empty. The small amount of urine obtained contained albumin, blood, and casts.

Blood.—The blood examination which was normal prior to this accident, showed four hours later a leucocytosis of 30,800; polymorphonuclears, 94 per cent.; lymphocytes, 4 per cent.; large mononuclears, 2 per cent.; eosinophiles, 1 per cent. The red cell count was reduced to a little over 3,000,000; the hemoglobin to 65 per cent.; the coagulation time was two and one-half minutes.

Subsequent History.—October 28: The temperature came down to 100 F.; the pulse ranged from 120 to 130, and the respirations were 24. The vomiting and diarrhea, although considerably less, continued; the vomitus and movements still contained blood. The patient was extremely weak and was covered with a cold perspiration; the urine was still scanty.

October 29: The general condition of the patient was much better; the temperature was normal, the pulse was still 120, and the respirations were 24. The occasional vomiting was free from blood and the diarrhea had ceased. She retained some nourishment and voided considerable urine. The right arm and hand became numb and painful, with considerable loss of muscular power.

October 30: The patient felt very comfortable, the vomiting and diarrhea ceased, and she was able to retain considerable nourishment. The temperature and respirations were normal and the pulse, though accelerated, was regular and strong.

From now on the patient gradually and steadily improved, all the symptoms subsided, the rapid pulse being the last thing to disappear. Her alimentary and urinary tracts cleared up completely: she gained in weight, and was discharged on Nov. 9, 1907 perfectly well.

So far as we can find only four cases of formalin poisoning are reported in literature, and of these four only one case occurred in this country. This case was in Indiana and was reported by Charles Bock. An imbecile, aged 26, swallowed from one to three ounces of a 4 per cent. solution of formaldehyd. The gastric irritation was severe and he died thirty-two hours later of cardiac depression. The autopsy showed the gastric mucosa to be highly inflamed and its wall was necrotic, dark, tough and cut like old leather.

Kluber reported a case in which a man drank an unknown quantity of formalin in mineral water; the chief symptoms were similar to those of acute alcoholic intoxication; recovery was complete.

Gerlach, in 1902, reported a case with similar symptoms with recovery which followed the swallowing of from 2 to 2½ ounces of 35 per cent. solution of formalin.

A case corresponding very closely to ours was reported by Zorn. The patient, a man, recovered after drinking half an ounce of a 40 per cent. solution of formaldehyd. The chief symptoms came from irritation of the alimentary tract and kidneys; they were retching, vomiting, vertigo, dyspnea and a burning pain in mouth and stomach; there was diarrhea with violent tenesmus; the secretion of urine was suppressed for twenty-four hours. Recovery was complete in four days.

In conclusion we would state that the determination of the presence of formalin poisoning is made by the odor of formalin in the vomitus and stools and by the following simple tests: Urine plus ammoniated silver nitrate gives a black color. Solution to be tested plus an equal volume of 40 per cent. caustic potash which contains 5 per cent. resorcin gives a red color.

Finally we might also add that from the four cases reported in the literature and our own that the symptoms of formalin poisoning, when taken into the alimentary tract, are variable; that the predominating symptoms are severe irritation of the gastrointestinal tract and kidneys with cardiac depression. The cause of death is usually from the latter. As no antidote for this poison has yet been found, the most rational treatment is to wash out the stomach and intestines with salt solution, both immediately after the poison has been taken and at suitable intervals thereafter; for Zorn has determined that the poison is excreted there. To combat the cardiac depression active stimulation should be given. Hypodermoclysis or saline infusions are needed to raise the blood pressure and to replenish the fluids of the body, which are tremendously depleted by the hydragogue effect of vomiting and diarrhea. If recovery occurs it is usually complete and permanent.

105 Greene Avenue.

FRACTURE OF PELVIS IN HIGH FORCEPS DELIVERY

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The comparative rarity of contracted pelvis outside of large centers of population is frequently the cause of lack of routine methods of examination of obstetric patients by the general practitioner. In the south, extreme deformities are exceedingly rare, and slight abnormalities may easily exist undetected. Many physicians in this part of the country state that they have never seen a case in which they considered symphyseotomy or a Cesarean section necessary or indicated.

The following case is reported as illustrative of these conditions and also because of the rarity of fracture of the pelvis occurring in forceps delivery:

Patient.—Mrs. B., aged 20, was a well-nourished primipara, of average height and weight, and with a good family history.

History.—Labor pains commenced Sept. 27, 1908, at September 29, at 9 p. m., I saw her in consultation with Drs. W. DeLay and W. P. Harbin. Axis-traction forceps had been applied four hours previously without avail.

Examination.—The head appeared to be of normal dimensions; the occiput presented in L. O. I. A. position, and was unengaged at the brim. The surroundings were very unhygienic and no measurements were taken, though the antero-posterior diameter seemed shortened.

Delivery.—Simpson long forceps were applied and delivery was effected in an hour without undue force in the extraction. A feeling of crepitation was experienced while the head was descending, but it made no special impression at the time. The fetus was normal in appearance but was stillborn; its weight was eight pounds. There was a small perineal tear which was repaired. After a thorough examination there was discovered a separation at the symphysis about 1.5 cm. wide. The urethra was torn and displaced to the right with consequent partial incontinence of urine. There was a fracture of the right ascending ramus of the ischium about 3 cm. below the symphysis. The measurement between the anterior-superior spines of the ilium was 25 cm. in the relaxed condition.

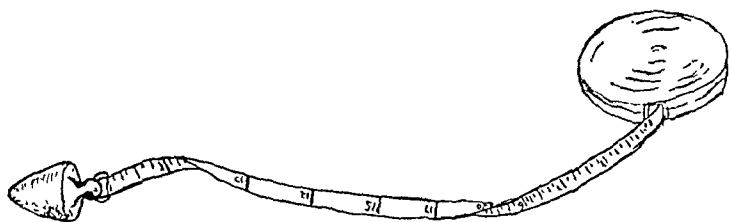
Subsequent History.—The hips were bandaged. The patient had a septic temperature for a month and finally an abscess developed between the layers of the abdominal muscles on the left side, just above Poupart's ligament. It was opened and drained, but a sinus persisted. The fractured bone united promptly, but about the end of the second month septic pneumonia developed and the woman died Dec. 29, 1908, three months after delivery.

The pubic separation remained, notwithstanding the efforts at bandaging. The fracture was evidently produced by the passage of the head through the outlet, showing that even after a symphyseotomy the possibility of a fracture should be borne in mind in cases of contracted pelvis.

A DEVICE FOR MEASURING FLEXION DEFORMITY IN HIP-JOINT DISEASE

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As the increase or decrease of deformity in this disease is a most helpful guide to the efficiency of treatment, an accurate and easy method of measurement is demanded. It is probably true that months of treatment might often be avoided by the early recognition of an increasing deformity. Failure to appreciate the value of studying the slight variations in the signs of



a joint disease has been responsible, probably, for the retention of such gross mechanical treatment as the gypsum cast, with an unwarranted faith that air and eggs will accomplish the rest.

We already have a sufficiently accurate method in the one worked out by Kingsley,¹ but as it necessitates the use of a reference table it is difficult of application.

The device herewith presented transfers this table from the printed page to one side of a tape measure. Instead of reading one side of a triangle in inches and then referring to the table for the degrees of the angle opposite, the degrees of the angle can be read directly from the tape.

Kingsley's table consists of the computations of the angles subtended by a series of perpendiculars in right-

angled triangles, the hypotenuse of which is constant. With the patient on the examining table, the leg on the diseased side is held in its position of greatest extension, as indicated by the lumbar spine. A hypotenuse of twenty-four inches is measured from the table, opposite the joint, in the line of the limb, and from its end a perpendicular is dropped to the table and measured. By referring to Kingsley's tabulation the angle at the hip may be found.

Attaching a plumb-bob to a tape line, I measured inches from the tip of the bob and marked each with the angle which such a perpendicular would subtend in a right-angled triangle with a hypotenuse of twenty-four inches. In using this tape some one holds the leg in the deformed position. Twenty-four inches are measured along the leg and the plumb-tape dropped to the table. The angle of flexion is read directly from the tape.

THE USE OF ATROPIN SULPHATE IN ANESTHETIZING BIRDS FOR SURGICAL EXPERIMENTS*

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In 1907 an investigation was begun in this laboratory on the physiology of reproduction in the domestic fowl. It was the plan of this investigation to use in the main experimental surgical methods in the analysis of the problems involved. Such experiments were begun in the fall of 1907. Much of the detailed technic involved in these experiments had to be worked out *ad hoc*, both with reference to the character of the problems studied and to the nature of the material itself.

At the beginning of our operative work on birds a great deal of difficulty was experienced in the matter of anesthesia. Such a difficulty had not been foreseen and for a time greatly hindered the progress of the work. It is difficult for one who has been accustomed to the behavior of mammals under anesthesia to realize how differently birds behave under similar treatment. At the outstart of the work chloroform was used as an anesthetic. After a number of birds had been killed on the table by the action of the chloroform it seemed clear that some change in the technic must be made. Resort was next had to ether. Better results were obtained, but still a great deal of difficulty was experienced.

The difficulty which we have found to be inherent in anesthetizing the domestic fowl may be stated briefly in this way: If any anesthetic is pushed to the point at which the bird is in satisfactory condition for operative procedure, in about nine cases out of ten the bird will die on the table from the effects of the anesthesia before the operation, if extensive, can be completed. If, on the other hand, the anesthetic is given less freely the bird does not lose its reflex excitability. Every time a cut is made or a nerve is pinched with the forceps the bird will struggle. Our experience in anesthetizing birds, which has now covered a large number of individuals, leads us to believe that the only middle ground between these two extremes is afforded by those cases (unfortunately too few) in which the individual idio-

* From the Biological Laboratory of the Maine Agricultural Experiment Station.

synerasy of the bird toward ether make it take the anesthetic well.

While we have made no detailed physiologic study as to the fundamental reasons underlying this difficulty respecting anesthesia which has been described, it seems reasonably apparent what these reasons are. Connected with the respiratory organs proper of a bird are the relatively enormous air sacs. During anesthesia the ether or chloroform vapor gets into these air sacs either by diffusion or directly as a result of respiratory movements. There is reason to believe that the vapor, once in the air sacs, stays there until it is absorbed by the tissues; in other words, it appears to be the case that the great bulk of an inhaled anesthetic in the case of birds must be eliminated from the body by way of the urinary organs rather than the respiratory organs. Assuming this to be the case there is no difficulty in seeing why forcing an anesthetic in a bird leads to disastrous results. The relatively enormous area for absorption afforded by the air sacs insures that a correspondingly large amount of the anesthetic will be taken up very quickly. This almost immediately affects the vagus center, with the consequent cardiac inhibition, respiratory failure and death.

In attempting to overcome this difficulty a considerable number of experiments were tried with indifferent success. Nearly every method of anesthesia which has been advocated was tried. From the glowing reports in the literature we were led to hope that scopolamin-morphin might prove to be the desired thing. A series of experiments with these drugs, in which various doses ranging from very small to very large were thoroughly tested, failed to yield satisfactory results. We found it impossible to induce satisfactory surgical anesthesia in fowls by injecting scopolamin-morphin. After various failures we finally began the routine use of atropin sulphate in connection with the anesthetic. Our idea was that if at the same time that the anesthetic was given to the bird some substance could also be given which should have the effect of neutralizing partially or completely the poisonous action of the anesthetic without destroying its anesthetizing effect it would then be possible to give the bird sufficiently large doses to attain the desired surgical condition without killing it. Now it is a well-known fact¹ that atropin is antagonistic in its pharmacologic action to substances like chloroform and ether. The suggestion was at once obvious that if atropin were not antagonistic to these other drugs in respect to anesthetic action, the poisoning might be obviated without disturbing the anesthesia by injecting into the organism, when the anesthesia was begun, a certain amount of atropin. The use of this drug in connection with chloroform or ether anesthesia has been advocated,² but, so far as we can learn, only to a very slight extent practiced.

This scheme of anesthesia was carried into effect in our work with birds in January, 1908. It may be said at once that the results from its use have been successful beyond anticipation. In our work we have kept birds on the operating table under the influence of the anesthetic for three or four consecutive hours, and at the same time carried on extensive surgical manipula-

tions without the least ill effect from the prolonged inhalation of the anesthetic. Not only do the birds which have been given atropin in connection with the anesthetic survive prolonged and deep anesthesia, but they are in much better condition for the operation than those not so treated. Relaxation is complete and reflex activity disappears. A preliminary injection of scopolamin-morphin (morphin sulphate 1/3 gr., scopolamin-hydrobromide 1/75 gr.) we have tried in the place of atropin sulphate. The resulting anesthesia with ether is better than when the ether is used alone, but in our experience it is not so satisfactory as when the atropin is used.

The exact method of procedure which we now follow in anesthetizing birds is as follows: Immediately before beginning the administration of the anesthetic a 1/200 grain atropin sulphate tablet is dissolved in 1 c.c. of warm normal saline solution. The salt solution with the dissolved atropin is then injected subcutaneously in the axilla. Ether is used as the anesthetic. It is administered from a small improvised mask which admits of the condition of the comb being seen during the operation. Depending on how hard the ether is pushed, the bird is ready for operation in from fifteen to twenty minutes after the anesthesia is begun. The dosage of 1/200 grain atropin to a bird may seem large, but we have never been able to see the slightest bad effect from it, provided the administration of ether was begun immediately after the injection of the atropin.

DIAGNOSIS AND TREATMENT OF CATARRHAL PNEUMONIA COMPLICATING INFECTIOUS DISEASES OF CHILDHOOD

ARTHUR STERN, M.D.

ELIZABETH, N. J.

The statistics of the various boards of health in the large cities of the United States show clearly the danger of the pulmonary complications of infectious diseases in childhood. In New York City, during the week ended Jan. 4, 1908, 581 cases of measles were reported to the health department, with 32 deaths, and if it is remembered that the majority of these deaths were due not to the disease *per se* but to the lung complications, it will be seen that these constitute an important factor in the management of the case.

The danger is in direct proportion to the size of the bronchi affected. When only the large bronchi are involved the danger is comparatively small, but as soon as the inflammation extends to the bronchioles, with exudation into the alveoli, the situation becomes serious.

The physical diagnosis of these conditions is not easy. The bronchopneumonia following bronchitis can be diagnosed only if the amount of healthy lung tissue is not large enough to mask the infiltration; in other words, if there are many infiltrated spots spread over the lungs, symptoms of bronchitis may be made out by auscultation, and the extremely rapid respiration will tell more than the ear.

The danger and prognosis in these cases may be just as grave as in cases in which there is perceptible flatness on percussion. Therefore, I always base my prognosis on the pulse, respiration and general facial expression rather than on the percussion and auscultation of the child's thorax. Sometimes, no matter how careful I have been in examining a child, I could hear nothing but signs of a general catarrhal condition of the larger

1. Cushny, A. R.: Text-Book of Pharmacology, pp. 285-289.
2. Cushny: Text-Book of Pharmacology, p. 175. Schäfer, E. A.: Artificial Respiration in Its Physiologic Aspects, THE JOUR. NAT. A. M. A., Sept. 5, 1908, II, 801. Schäfer says: (*loc. cit.*, p. 803): "Both these dangers are obviated by the hypodermic administration, prior to the operation, of a small dose (1/50 grain) of atropin sulphate. It seems strange that anesthetists do not generally adopt this simple precaution as a routine method."

bronchi, and yet the rapidity of respiration already showed the existing deeper involvement.

In the majority of my cases the bronchopneumonic infection was nearly always well developed before I had a chance to see the patients. In measles and whooping cough the physician is generally consulted when additional trouble has been existing several days. If called early, and then only, I have always used syrup of ipecac in teaspoonful doses, repeated often enough to produce copious vomiting and then stopped. It has seemed to me that a large depletion of stomach contents acts, probably reflexly, on the obstructed channels of the lung.

In treatment of children I advocate hydrotherapy. There is such a broad field for cold and hot water in the treatment of the sick child that it seems strange that physicians do not avail themselves of this handy and, if used with common sense, effective remedy.

If the child has high fever I use cold water applications, having the water the same temperature as the room, in the following manner: A long towel is folded so that when wrapped around the child it reaches from the axillæ to the navel. It is then dipped into water, well wrung out, and put around the child; then a flannel cloth, broad enough to cover the towel, is put over that. A fresh application should be made every hour or two, but the child must not be disturbed while it sleeps, a fact which must be impressed on the parents.

In strong children water colder than the temperature of the room may be used. Very often in connection with this I recommend hot baths twice daily, of five minutes duration each time; these I find are always followed by a good rest.

If there is very little rise in temperature, especially in cases of whooping cough complicated with bronchopneumonia, I frequently apply warm water to the chest, putting a piece of oil silk between the towel and the flannel, but here extreme care must be taken to avoid infection of the skin, which happens occasionally when oil silk is used between the layers; and it is necessary to apply a mild ointment or cold cream to the skin of the thorax to avoid furuncles or eczema.

So far as medication is concerned, physicians can not boast of much success in influencing these conditions. Of the modern products the guaiacol and creosote preparations have some value. It is my practice to order, according to age:

R.	gm.	
Creosoti carbonatis	1 to 4	or grs. xv to 5i
Sacchari alb.		
Mucilago acaciæ, aa.	q. s.	90
M. et fiat. emulsio cum aqua destillata.		5iii
Sig.: One teaspoonful every two hours.		

This is readily taken by the sick child and may be continued at intervals for some time without untoward results.

In desperate cases I have used mustard applications, recommended by Heubner of Berlin, occasionally with surprising results.

I quote from him as follows: Take a pound of mustard flower and to this add a quart and a half of warm water, stir until the odor of mustard is perceptible. A towel is dipped into this mixture, wrung out, and wrapped around the child from the shoulders to the feet, and then a woolen blanket is put over this. The neck must be well covered so that the mustard does not affect the eyes and lungs. The child stays in this dressing for from ten to thirty minutes, or until the skin is red. It is then washed with lukewarm water, after

which a bath of five minutes duration in lukewarm water is given. Then a moist warm towel is put around the chest. This procedure may be repeated the next day. Sometimes the result is surprising, and a life despaired of may be saved.

Fresh air is, of course, a *conditio sine qua non*, and while I have not much experience with the cold air treatment of pneumonia, yet I think that the happy medium will apply here as well as in other diseases.

In conclusion I would like to say once more that medication plays an inferior rôle in the treatment of these, if I may call them so, infectious pneumonias of childhood, while hydropathic procedures, as mentioned above, in connection with a generous liquid diet of milk, broths and eggs, will succeed in saving many a child who seems to be at death's door.

224 East Jersey Street.

Therapeutics

ACNE

This troublesome condition or disease, which is so frequent in adolescence and may so many times persist for years, should always be taken seriously. The family physician is more and more frequently consulted early in the disease, and too frequently dismisses the young patient with some recommendation or treatment that is very likely to prove ineffectual. Possibly the increased dust and dirt of our cities causes an increased tendency to the formation of comedones and subsequent acne indurations by quickly coating and sealing the little sebaceous ducts of the face, especially if, as is frequently the case, the patient has a profuse oily secretion.

It is not the purpose of this article to describe all the preparations or local treatments that may or should be used for facial acnes, but to urge, in the beginning of such troubles, a careful investigation of the patient's digestion, general health and habits, as we know that metabolic disturbances (which are so often present during adolescence) and preventable gastrointestinal indigestion are often the primary causes of acne. Also a carelessness and an actual lack of cleanliness, or improper hygiene of the face, is frequently the cause of the development of comedones and acne.

The young boy and young girl, especially in their early teens, are very careless as to the movements of the bowels. Constipation is the bane of America, and its beginning is generally traceable to gross neglect during this period of life. The young child is carefully watched by its mother and the condition of its bowels is known. The boy or girl of 15 is not so watched, and both attending schools, later colleges and seminaries, or hastening to stores or factories, think they have not time to attend to this call of Nature directly after breakfast, the physiologic time for a bowel movement. Young boys and girls go to bed too late, and dislike to arise in the morning until the very last moment, and then have not time to attend to this necessary function.

They also, because of this lack of time, swallow their breakfasts almost without chewing. This is especially true with mushy, gelatinous cereals, and particularly true of oatmeal. Consequently oatmeal in gummy, sticky, gelatinous masses, the manner in which it is mostly eaten, although considered one of the most nutritious of foods, becomes the most frequent single cause

of indigestion in this country. Thin, well-cooked oatmeal and oatmeal gruels are splendid nutriment. Oatmeal boluses are pernicious.

The enormous consumption of sweets, candies, ice cream soda and the frequent drinking of soda fountain products is another and increasingly frequent cause of the indigestion that predisposes to acne, and this is another failing of adolescence. Any gastrointestinal indigestion, which includes loss of appetite, perverted appetite, constipation, and abnormal looseness of the bowels, should be corrected and properly treated before it could be hoped to cure or prevent the further development of an acne. Even if there is no actual apparent indigestion, sugars, spices, abnormal amounts of tea and coffee, greasy fried stuffs and hot breads, pancakes, oatmeal and impure syrups should all be removed from the diet.

Many acne patients are anemic, and some girls are chlorotic, and such patients, of course, are improved by the administration of iron or arsenic, or both.

If, in a girl, menstruation is irregular, disturbances seem to be present that predispose to acne, and while it is perfectly correct to tell a mother with a daughter who is apparently well but whose menstruation seems difficult of establishment, or having once begun is exceedingly intermittent, that Nature will take care of this function, it is many times better to correct that function, as having once begun, the girl is certainly better with its perpetuation. A careful investigation into the condition of such a female patient will often show either a malcondition of the blood and lack of proper nutrition, or a disturbance of the thyroid gland, either a hypothyroidism, the most frequent condition, or a hyperthyroidism possibly. In any of these conditions the patient can be improved by proper treatment.

Some patients with acne, especially girls, are suffering from denutrition from over-activity, mental or physical. The parents are largely to blame for this. They stimulate and push the young girl beyond her strength. They are proud of her acquirements, and they want her to excel in everything, or at least have a knowledge of everything. Then the girl is stimulated by the never-ending school competition. And to cap the climax of the mental activity, she is urged as a proper thing, and the parents, teachers and profession think it is proper, to take a course in physical culture. While physical culture is needed and wise, the manner in which it is carried out is often the last straw to break down the physical vigor of a girl who is working up to the limit of her strength. Too many hours of mental work, and too severe "physical culture," are the cause of many a permanent breakdown in the young girls of America, and many times a troublesome acne is an indicator of both nervous strain and physical debility.

Frequently, however, exactly the reverse of this condition occurs, and the flabby, phlegmatic girl or boy who is unwilling to take sufficient physical outdoor exercise develops the unpleasant condition of acne, and he or she should be stimulated to greater activity.

It resolves itself into the axiom, then, that no patient with acne can be well treated or cured without a careful and complete investigation into the whole life of that patient.

Acne is likely to occur, and can never be cured, unless the young boy or girl is taught and carries out the hygiene of thoroughly cleansing the face before going to bed. The oily secretions of the day have accumulated the dust and dirt of the atmosphere, and at night this dust dries the secretions and blocks the channels of exit

Comedones, indurations, acne nodules and pustules are the result. A patient who has profuse oily secretions of the face should not use hot water on the face. Also it is well never to use cold water on the face. The hot water tends to increase the oily secretion by causing congestion, and the cold water tends, by its reaction, to do the same thing. The easiest, most thorough way of cleansing the face is to remove the dust and dirt with a pure cold cream. A lump of the cold cream the size of a hazelnut or hickorynut is taken in each hand and rubbed gently over the skin. The face is then wiped off with a soft towel and then washed in lukewarm water without soap. In some cases it may be best to inhibit the profuse secretion of the sebaceous glands by bathing the face once or twice a day with dilute alcohol, bay rum or other astringent solution.

As above stated, it is not the purpose of this article to delineate the local treatment of acne, but to urge that more effort be made to prevent the complete development of this disease, which, while not in itself a disturber of the general health, is a cause of acute mental suffering, in the young girl at least.

OBESITY

Moritz, in the *Muench. med. Wchnschr.*, July 28, 1908, advises an exclusive milk diet to reduce obesity, the average patient receiving about two quarts of milk a day. This is divided into a pint at 7:30 a. m., a half-pint at 10 a. m., a pint at 1 p. m., a pint at 4 p. m., and a half-pint at 7 p. m. This quantity should be increased or diminished, depending on the loss of weight. If the loss is too rapid the milk is increased, and if too slow the amount is diminished. The milk may be taken cold or hot, with or without lime water, or some soured milk preparation may be substituted for the sweet milk.

This method of treatment is so simple that it would seem advisable to give it a trial in almost any instance. In kidney insufficiency it would be good treatment. In cardiac insufficiency, with a tendency to dropsy, it would not be good treatment, on account of the amount of liquid the patient would receive, it being better to reduce the liquids when there is cardiac or circulatory insufficiency.

If the bowels do not move freely on this milk diet some laxative should be coincidentally administered.

It is also supposable that some patients who must work actively would become very weak on this milk diet, and such patients should be allowed some meat once a day or one or two eggs a day.

TAPEWORM

Schilling, in the *Therap. Monats.*, April, 1908, gives his treatment, which is as follows:

R.		gm. or c.c.	
Oleoresinæ aspidii	.....	8|	3ii
Pulveris jalapæ	.....	50	or gr. viiss
Syrupi	.....	30|	fl. 5i

M. et Sig.: Take one-half, with water, at the time directed, and the remainder in half an hour. [Shake well.]

Schilling advises the administration of a cup of black coffee fifteen minutes before the administration of the male fern. For the next few hours the patient should fast, and if the worm is not expelled in three or four hours he advises an enema of a quart of warm water.

The above dose of male fern is large, and it would seem wise to give a saline cathartic, two hours after the first dose of it, to hurry its exit from the body, lest too much absorption should occur.

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[For other information see second page following reading matter]

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THE PHARMACOLOGY OF TOBACCO SMOKE

We have had much less fact than fancy in our notions concerning the effects of smoking, for to every pharmacologist able accurately to determine the facts there are millions of zealous experimenters who are prepared to settle the whole matter at a moment's notice on the grounds of their own experience, and still other millions of opponents who are equally willing to advance opinions on the basis of their inexperience. For example, we have the ever-prominent opposition to the cigarette, which prejudices opinion and even legislation as actively as ever, in spite of the fact that the claims on which this prejudice is based, namely, that cigarettes are "doped" with opium and other expensive drugs by extravagant manufacturers, and that rice paper is very poisonous, have been disproved over and over again by chemists and by commissions. Prejudice crushed to earth will rise again, to paraphrase, and the anticigarette propagandist is about as willing to listen to calm facts as an antivivisectionist is to hear uncensored statistics concerning diphtheria and antitoxin. Indeed, as to the actual chemistry and pharmacology of tobacco smoke, physicians themselves seem to have relied more on tradition than anything else, for certainly the average physician appears to retain an idea that the nicotine is destroyed in the burning of the tobacco, and that all the effects, sinister and beneficent, are produced by the combustion products, of which the pyridin bases have the most unsavory reputation. This widely prevalent opinion dates back to 1871, when Vohl and Eulenberg¹ reported that they had been unable to obtain a trace of nicotine in the smoke from 100 cigars, and, therefore, concluded that the pyridin bases must be the active constituent of the smoke, and their conclusions have passed current with most physicians and laymen up to the present time, despite numerous contrary reports by other investigators. Heubel, Gautier, Thoms, Schmidt and others, one after another, reported the finding of nicotine in tobacco smoke, and although one positive finding should offset many negative results, in this instance the reverse has been the case. Habermann and Ehrenfeld find that with some kinds of cigars two-thirds of the nicotine passes over into the smoke, while with other brands the smoke may contain but one-twelfth of the alkaloid.

In a recent paper from the Pharmacological Laboratory of Cambridge University, W. E. Lee² has reported several interesting observations on this subject. By passing the smoke from 100 grams of tobacco through saline solution he was able to collect 1.165 grams of nicotine, representing one-half of the total nicotine of the tobacco, while but 0.146 gram of pyridin bases, chiefly pyridin and collodin, was obtained. A sample of Virginia tobacco yielded an extract (1 gram of tobacco extracted in 100 c.c. salt solution) which caused a rise in blood pressure of 56 mm. mercury in a cat, while the same tobacco after being prepared for cigarettes produced a rise of 42.4 mm., showing that not a little of the substance which raises blood pressure (nicotine) is destroyed in this process. A very interesting demonstration of the influence of the form in which the tobacco is smoked was the following: A Manila cigar and a cigarette of Virginia tobacco were so burned that the same amount of tobacco was consumed in equal time, and the effect of the products of the combustion determined; it was found that although the cigarette tobacco used contained nearly twice as much nicotine as the cigar tobacco, yet the smoke of the latter was twice as toxic as the cigarette smoke. This is explained as follows: During the slow combustion of a cigar, as in ordinary smoking, immediately behind the point of combustion is an area in which the water and other volatile substances condense; during the act of smoking the hot gases pass through this moist area and volatilize the more volatile principles of the tobacco, of which nicotine is one. Therefore the smaller the moist hot area behind the point of combustion, and the more rapid and complete the combustion, the less likely is the smoke to contain volatile toxic bodies; hence a cigarette or a slender cigar will yield fewer of these products than a thick cigar, and many smokers can testify that a thick "fat" cigar has much more effect than a long slender cigar of similar tobacco. The unpleasant effects that the unaccustomed smoker experiences on relighting a half-finished cigar or pipe are explained on the same basis.

An interesting series of pharmacologic studies on experimental animals and on man also furnish evidence that the chief active constituent of tobacco smoke is nicotine. The effects on cardiac and involuntary muscle of nicotine are almost exactly the same as that of the solution obtained by passing tobacco smoke through water, except that in the latter there is some antagonism between the tonus-depressing effect of the collodin of the smoke and the stimulating effect of the nicotine. Pyridin seems to be entirely without influence in any doses such as could be obtained with even a very large amount of smoke. The effect of smoking on the blood pressure in man was very striking in the case of novices, an initial rise of pressure being followed by a very severe and sudden fall (from 128 mm. to 78 mm. in

1. See a recent review by J. Dixon Mann, *British Medical Journal*, Dec. 5, 1908, p. 1673.

2. *Quart. Jour. Physiol.*, 1908, 1, 335.

one case) at a time when the patient presented the familiar condition of "intense pallor of skin, cold sweat on forehead, feeling very faint and weak. Cigar three-quarters finished: stopped smoking." Even the habitual smokers showed a slight rise of blood pressure when smoking, although the rest of the description did not apply to them.

The action, then, of tobacco smoke on man is exactly what might be expected from a knowledge of the action of nicotin; while the stimulation stage lasts the blood pressure is raised, then as the nerve cells are depressed the blood pressure falls, this fall being perhaps augmented by the depressive action of the pyridin bases. It can scarcely be doubted that the influence of the rise in blood pressure on the circulatory system may be injurious in some cases. While many persons can and do smoke in moderation without any noticeable effects ever being manifested, there are cases in which an hereditary tendency to arterial disease seems to be seriously accelerated by tobacco. Not only can aortic atheroma be produced experimentally in rabbits by injecting either nicotin or infusions of tobacco or by inhalation of smoke,³ but not a few cases have been observed in man in which there seems to have been no evident cause for an extensive arteriosclerosis other than excessive smoking.

BACTERIAL VIRULENCE AND RESISTANCE TO PHAGOCYTOSIS

It is a well-known fact that high degrees of virulence in certain bacteria are associated with absolute resistance to phagocytosis, at least under the influence of normal serum. Metchnikoff made the observation early in the course of his studies of phagocytosis in infectious diseases and formulated a general law to the effect that as a microbe grows in virulence its resistance to phagocytosis increases. Probably the best known examples of this phenomenon are furnished by pneumococci and streptococci.

A number of explanations have been advanced to account for the resistance to phagocytosis on the part of virulent strains of these and other bacteria. At first they were believed to produce substances that repelled leucocytes and caused a "negative chemotaxis." Then it was also urged that such bacteria give rise to substances that injure and even kill the phagocytic cells, so-called leucocidal and leucotoxic substances, of which the staphylolysin of infective staphylococci is the best example. Similar substances have been found also in the filtrates of broth cultures of virulent streptococci. These substances may cause morphologically demonstrative disintegrative changes in leucocytes.

While leucocidal substances no doubt promote the infective powers of the cocci, yet they do not explain the resistance of virulent cocci to phagocytosis, more par-

ticularly because it has been shown by Marchand and others that virulent streptococci and pneumococci even after being washed and killed by heat still resist phagocytosis.

Avirulent strains of the same cocci remain phagocytatable although suspended in filtrates of cultures of virulent strains. For these reasons Marchand advanced the hypothesis that virulent streptococci are non-phagocytatable because of their physical state.

When the rôle of opsonins in phagocytosis was discovered the question at once arose as to the relation between the opsonin and virulent streptococci, pneumococci and other bacteria. Rosenow¹ took up this question as regards pneumococci and he shows that avirulent strains absorb opsonin in human serum and become phagocytatable, whereas virulent strains of the same mother culture do not absorb this opsonin and remain insusceptible to phagocytosis. These properties may be diminished or increased at will by passage through rabbits or cultivation on artificial media. He then proceeds and by extraction of virulent pneumococci in salt solution removes from them a substance (or group of substances) that specifically inhibits the action of human pneumococco-opsonin in the test-tube. Furthermore, he demonstrates that avirulent pneumococci take up this substance and become resistant to phagocytosis and also to some degree virulent for rabbits, while the virulent pneumococci after being extracted absorb pneumococco-opsonin from serum. In other and more succinct form we may say that virulence in pneumococci and the correlated property of resistance to phagocytosis depend on an extractible substance with which a number of highly interesting experiments may be made. For this substance the name "virulin" has been proposed.

This rather startling discovery has been confirmed quite independently by Tchistovitch and Yourevitch² in St. Petersburg. Working with pneumococci and dog serum they reach precisely identical results, so far as they go. They do not appear to have studied the virulence of avirulent pneumococci after treatment with extract of virulent strains. The Russian investigators name the substance "antiphagin," which, like Rosenow's "virulin," is specific, that is, does not bind any other opsonin than that for pneumococci, and thermostable, even resisting boiling and consequently wholly different from the still hypothetical aggressin of Bail and his followers.

It is of great moment that virulence and resistance to phagocytosis of pneumococci have received so satisfactory and simple a solution as seems to be the case. A point has been reached for the departure of new and fruitful investigations into pneumococcal and allied infections and further developments will be awaited with keen interest.

3. See the articles by Lee and Mann (referred to above) and by Zebrowski, *Centralbl. allg. Path.*, 1908, xix, 609.

1. *Jour. Infect. Dis.*, 1907, iv, p. 253.
2. *Ann. de l'Inst. Pasteur*, 1908.

A REMARKABLE TYPHOID CARRIER

In 1854 a newly-married couple moved into a substantial wooden house in the country in Sweden. During the years 1855 to 1865 seven children were born, all growing to maturity without any noteworthy disturbances on account of sickness. The father died in 1896, 88 years old, and was succeeded in the management of the estate by a son, born in 1861. This son married in 1897, but the wife died from eclampsia one year later. In 1901 he married again, and in 1904 the family consisted of husband, wife, two small children, the husband's mother, 79 years old, two maids and a manservant.

At this point Dr. Jundell, from whose report¹ these details are taken, made an extended investigation of the family record as to sickness since 1854, of the premises, and of the living members of the family because of the continued occurrence during all these years of a severe, occasionally fatal, febrile disease that attacked especially newly arrived servants. The first case occurred in 1854, and up to 1908, when Dr. Jundell's report was published, twenty-two different persons were attacked, and in the case of seventeen of these the diagnosis of the family physician or in the hospital to which many were sent was typhoid fever. In the remaining five, and here it concerns mostly the early part of the period, the diagnosis was *Febris gastrica* or *Febris nervosa gastrica*. In the last two cases—the aforesaid son's second wife and daughter—the diagnosis of typhoid fever was fully established by demonstration of typhoid bacilli in the feces and by positive agglutination tests. It is remarkable that these two cases are the only instances known to have occurred among the parents and descendants of the family, all the other cases having been among servants and other persons of the household.

Dr. Jundell's careful investigations show conclusively that the disease was confined strictly to this one family and that the infection was not carried by water or milk in the ordinary manner. The neighborhood was free from typhoid fever during all these years and other households using the same milk and water were not attacked. Bacteriologic examination of the floors and walls of the house gave negative results as to typhoid bacilli. The individual cases always occurred singly and so far apart in point of time from other cases that contact infection from fresh cases can not account for the whole series. The family itself felt as if it were especially pursued by typhoid fever, and for some time back persons who had had typhoid were sought when new servants were wanted. The mystery receives a satisfactory explanation, however, by Dr. Jundell's demonstration that the grandmother is a typhoid carrier, and apparently a persistent one, because the feces were found even richer in typhoid bacilli in 1908 than in 1904, when they were first examined. At times the feces seemed to contain typhoid bacilli in almost pure

culture. The demonstration that it actually concerns typhoid bacilli seems conclusive. No other member of the family was found to harbor bacilli at the time when Dr. Jundell made his examinations.

Of course it can not now be proven that all the cases of typhoid fever in this protracted series were derived from this carrier, but on the basis of the facts that are at hand the conclusion that in this case carrier infection played an essential rôle certainly is fully warranted. Two points remain to be noted: (1) that there is no record that the only demonstrable carrier in this family epidemic ever had typhoid fever herself, and (2) that of the nine children in question only one is known to have had the disease, whereas of the total number of cases twelve occurred among maids whose offices under the circumstances naturally would bring them into closer contact with articles contaminated by the carrier. Jundell also suggests that in the case of the children light attacks may have passed off without being recognized. At all events, this record of family typhoid is full of interest as an example of the rôle that a typhoid carrier may play in maintaining and spreading typhoid fever.

CALCIUM METABOLISM AND TETANY

Although the forms of tetany are numerous, if we classify them according to the causative or associated conditions, such as gastric dilatation, pregnancy and lactation, osteomalacia and rickets, and operative extirpation of the parathyroid glands, yet in all forms the general features of the disease are similar. The characteristic symptoms depend on increased excitability of the central nervous system, which is in a state of very unstable equilibrium, and much light is now being cast on the cause of this instability of the nervous system as well as on the pathogenesis of tetany and the tetanoid symptoms through the study of the parathyroid glands both experimentally and clinically. We have previously referred to many of the steps of our progress and wish here to discuss some of the most recent developments.

By the work of numerous investigators it has been conclusively established that removal or destruction of the greater part of the parathyroid tissue leads to a typical condition of tetany, both in man and the experimental animals, and at present the chief question concerning this relationship between the parathyroids and tetany is as to how large a proportion of the cases of clinical tetany with their multifarious etiology are due in whole or in part to defective parathyroid functionation. Certain it is that in tetany following operations on the thyroid in which the parathyroids are removed or injured, the effect of subcutaneous or intravenous injection of extracts of the parathyroid is a specific symptomatic cure.

As with the thyroid itself the effective extract may come from some entirely different animal species, but it differs from thyroid extract in not being effective when

given by mouth. The active constituent of the parathyroids is certainly entirely different from that of the thyroid, for it does not contain iodine, and is contained in the nucleoprotein that can be separated from the gland, as first shown by Beebe. MacCallum and Voegtlin have also found that the nervous manifestations of tetany following parathyroidectomy can be held in check by administration of calcium salts, thus adding another instance of corroboration of the pioneer observations of Jacques Loeb. Loeb observed that the injection into the animal body of any salt liable to precipitate calcium causes twitching of the muscles, and he suggested the possibility of using calcium salts in treatment of spasmodic affections. Sabbatin also found that the irritability of the cerebral cortex is reduced by the local application of calcium salts, and increased by the application of substances which precipitate calcium; and numerous other observers have since reported results of similar import. Since in tetany the most conspicuous symptoms are due to abnormal excitability of the cerebral cortex, the use of calcium salts to check these symptoms was a logical step which was justified at once by the striking results obtained.

In a recent paper MacCallum and Voegtlin¹ have reported their later studies on this subject, which contain much of interest. They find that salts of potassium and sodium have no favorable effect on tetany, while any beneficial effect the magnesium salts may produce is masked by their toxicity. The results of animal experiments have been found to hold good when applied clinically, a patient with tetany following thyroidectomy for malignant struma being relieved in the course of one day by administration of calcium lactate.

In animals after parathyroidectomy there occurs an increased elimination of calcium in the urine and feces, which results in a marked reduction in the calcium content of the tissues, especially of the blood and brain, a finding in complete harmony with the observation of Quest that in tetany the calcium content of the brain is remarkably lowered, and also with the occurrence of tetany during lactation and in osteomalacia and rickets.

Apparently the parathyroid secretion has an influence on the calcium exchange in the body, perhaps because in the absence of this secretion there develop abnormally products of metabolism which combine with and extract the calcium from the tissues. "The mechanism of the parathyroid action is not determined, but the result, the impoverishment of the tissues with respect to calcium and the consequent development of hyperexcitability of the nerve cells and tetany, is proven." Tetany, therefore, would seem to be, at least in many cases, the expression of a hyperexcitability of the central nervous tissues due to the withdrawal from them of calcium, and this withdrawal of calcium may conceivably be the result of defective supply, of excessive elimination because of parathyroid incompetency, or of a drain on the

calcium supply for physiologic purposes or because of abnormalities in calcium metabolism. Already there is evidence to connect the parathyroids with the abnormal calcium metabolism of osteomalacia and rickets, and it may be found that it is only in the presence of at least a relative insufficiency of the parathyroids that the usual predisposing causes of tetany bring about this condition.

THE ADVANTAGES OF TABULATING CLINICAL RECORDS

The graphic method of recording temperature, pulse and respiration by means of the well-known chart is such an obvious advantage in the precision and clearness with which it presents the changing aspect of these factors that it has been very generally adopted, particularly in recording the course of acute febrile diseases. Almost as valuable in its power to project the changing features of disease, acute or chronic, in such a manner that the mind necessarily conceives a broader picture of the condition is the method of tabulating the findings of variable features such as the weight, conditions of the blood or of the gastric or renal functioning as discovered in the laboratory, the blood pressure, etc. There are many other factors which do not lend themselves readily to graphic methods of expression but which may be conveniently tabulated. In preparing a case history to present before a medical society or in a journal, where it is desired to bring out as clearly and impressively as possible the significance of variable factors, the table is the natural means of expression, but in the day's work of the ordinary clinician, in the study of the cases which are never to be reported, how seldom is this efficient aid to diagnosis, to prognosis, to treatment, utilized! The habit of appending to every case record a table of the variations of at least some of the important factors, which may be glanced over and grasped in an instant, will be found to do much toward correcting that mental myopia to which all are in some degree subject.

ANTIVIVISECTION DISINGENUOUSNESS

In the report of an inquest¹ on a child who died from the results of an injury, after the casual dressing of a wound of the skull at the National Antivivisection Hospital, London, the following illuminating instance of the disingenuousness of antivivisection tactics appears. The coroner, quoting from a prospectus of the hospital, asked what was meant by the expression found there: "No experiments on patients." The witness, resident medical officer at the hospital, replied: "I do not know that any hospital has experiments on patients." The coroner rejoined: "Is it usual in general hospitals to experiment on patients?" To which the representative of antivivisection replied: "No, sir; but other hospitals are equally at liberty to put that." Can the sophistry of this answer be rendered clear to the gentleman in question by a personal application of the principle? If in a discussion he were to assert a certain thing and his

1. Jour. Exper. Med., 1909, xi, 118.

2. Lancet, Jan. 9, 1909, p. 124.

opponent were to assert the opposite, and add the words: "and I am not a liar," it is not difficult to imagine what kind of an implication he would place on this oblique method of assertion, and further that his outraged dignity would not be appeased by the suggestion that he himself might have made a like statement had he chosen to do so. A direct misstatement of the facts in a controversy may be due to ignorance or misapprehension, but this roundabout method of asserting by implication at once suggests both malice and cowardice.

THE RESCUE OF THE REPUBLIC—AN OBJECT LESSON IN "PURPOSELESS" RESEARCH

A large number of people fail to appreciate the enormous value to medical science, from a practical viewpoint, of "mere laboratory work," in the more abstruse problems of physiology, pathology, general biology, etc. They seem to demand that all investigation should be undertaken with a well-defined application in view. They are impatient of investigations whose sole object is to transfer everything possible from the region of the unknown to that of the known. Yet but for this seemingly aimless work performed by the pioneers of medical science in laboratory experimentation many of the triumphs of applied medicine would be impossible. It is well, therefore, to emphasize the object lesson in this direction so recently afforded by the application of similar laboratory work in the physical sciences, through wireless telegraphy, in the rescue of almost the entire personnel on board the ocean liner, the *Republic*. The world just now is ringing with this splendid achievement of the practical work of Marconi, but it forgets, or perhaps has never realized, that this work was rendered possible only through the previous researches of Hertz into pure and unapplied science, which resulted in the discovery of the waves that bear his name. Yet it is safe to assert that no such application as has subsequently been made of them was present in the mind of that scientist while engaged in pursuing elusive knowledge in any direction in which it might lead him.

Medical News

CALIFORNIA

Personal.—Dr. Clarence A. DePuy, Melrose, sailed from San Francisco, January 3, for China and Japan.—Dr. William Ophuls has been unanimously re-elected president of the San Francisco Board of Health.—Dr. Arthur T. Piercy, Oakland, was seriously injured in a collision between an automobile and an electric car recently.—Dr. William F. McNutt, Jr., San Francisco, was seriously injured by being thrown from an automobile against a stone wall, December 18.—Dr. Emile Schmoll, San Francisco, fractured his right arm while attempting to crank his automobile, December 22.

Lane Lectures.—The twenty-seventh annual course of Lane lectures began at Cooper Medical College, January 8, and will be continued on each alternate Friday night. The following is the complete list of lectures:

January 8, "Smallpox and Vaccination," Dr. Emmet Rixford; January 15, "Isco's Milk Supply," Dr. W. F. Snow, Stanford; January 19, "First Aid to the Injured," illustrated, Dr. George B. Somers; February 5, "Medicine and Religion," Dr. William F. Cheney; March 5, "Hypnosis," Dr. A. M. Gardner; March 19, "How Disease Is Transmitted," Dr. Rufus L. Rigdon; April 2, "The Crusade Against Tuberculosis," Dr. Joseph O. Hirschfelder; April 16, "The Medical Inspection of Schools," Dr. William Ophuls; April 30, "What the Doctors Are Doing," Dr. George F. Hanson; May 14, "Gallstones," Dr. Stanley Stillman.

COLORADO

Personal.—Dr. and Mrs. Bernard Oettinger, Denver, have gone to Europe.—Dr. Edward Delehanty, Denver, will shortly leave for Germany.—Dr. Clara M. Moore, Denver, has been appointed physician of the woman's department of the State Hospital for the Insane, Pueblo.—Dr. J. J. Pattee, Pueblo, has been appointed oculist and aurist at Minnequa Hospital.

Publicity Bureau.—Colorado State Medical Society has organized a press bureau for general educational purposes to inform the public as to the symptoms of the commoner communicable diseases and how these diseases may be guarded against by proper observation of sanitary rules. The headquarters will be at Montclair, and Dr. Orville D. Westcott, Denver, is secretary of the committee.

Mortality of Denver.—During 1908 there were 3,540 deaths reported in Denver, 27 more than for 1907, 472 more than for 1906, and 716 more than for 1905. Diseases of the respiratory apparatus caused 557 deaths; diseases of the nervous system, 351; digestive diseases, 332; circulatory diseases, 322; genito-urinary diseases, 260; and violence, 193. Of the deaths, 157 occurred in early infancy, and 102 in old age.

GEORGIA

Fraud Order Issued.—As a result of an investigation by a postoffice inspector the Postoffice department is said to have issued a fraud order, January 13, against Dr. Rosa F. Monnish of Atlanta, prohibiting her the use of the mails and forbidding the mailing of any newspaper containing an advertisement of her place of business. She is charged with fostering immorality and profiting therefrom. The fraud order is also said to apply to Dr. William A. Monnish, who is referred to as her "accomplice."

Personal.—Dr. Theodore E. Oertel has been reelected a member of the governing board of the City and Lamar hospitals, Augusta.—Dr. Bernard Wolff has been elected president, and Dr. Cyrus W. Strickler, vice-president of the Atlanta Board of Health.—Dr. Theodore E. Oertel, Augusta, has been elected president, and Dr. William C. Kellogg, Augusta, vice-president of the Richmond County Antituberculosis Society.—Dr. Millara F. Matthews, Athens, has been made health officer of Clarke County.

ILLINOIS

County Tuberculosis Institute.—Lake County Tuberculosis Institute, four miles north of Waukegan, which was started in July last, now has a capacity of eighteen in winter and thirty in summer. Organization of the institution was effected September 3. Dr. John C. Foley is president; Dr. William C. Bouton, secretary, and Dr. W. H. Watterson, manager-treasurer and physician.

Chicago

Hospital Changes Name.—The Practitioners Hospital has changed its name to Abraham Lincoln Hospital. Dr. Michael Goldenburg, 72 E. Madison St., director of clinics in the dispensary attached to the hospital, announces that there are eight vacancies on the staff.

Get-Together Dinner.—The Chicago Medical Society and the Chicago Retail Druggists Association held their annual "Get-Together Dinner" at the Auditorium, January 19, in furtherance of the national movement to establish a code of medico-pharmaceutical ethics. Dr. Alfred C. Cotton presided as toastmaster.

Personal.—Drs. William A. Fisher, Adolphus G. Wipperf, H. W. Woodruff, Thomas Faith, and John R. Hoffman have been reelected directors of the Chicago Eye, Ear, Nose, and Throat College.—Dr. Jesse M. Yonan has recently returned after eleven years spent as a medical missionary in Persian Kurdistan.—The Illinois Branch of the American National Red-Cross will organize a first-aid legion on military basis, of which Dr. Gustavus M. Blech has been appointed director-in-chief by Dr. Louis L. McArthur, chairman of the executive committee.

Milk Commission.—Declaring certification of milk in Chicago a failure, the Chicago Medical Society has appointed a milk commission, consisting of Drs. Isaac A. Abt, Marcus P. Hatfield, Frank S. Churchill, James W. Van Der-slice, Charles S. Bacon, and Samuel J. Walker, to take charge of certified milk and furnish labels to dairies that have complied with regulations. The commission will appoint a physician whose duty shall be to look after and testify to the health of employes of every dairy whose milk is to be certified.

A chemist and bacteriologist will also be selected to examine the milk.

Health Conditions Improved.—Material improvement in health conditions was noted during the week ended January 23. There were 101 fewer deaths than in the preceding week, and 65 less than in the corresponding week of 1908. There were 46 fewer deaths from influenza, 28 fewer from tuberculosis, 21 fewer from pneumonia, 15 fewer from nervous disease and 6 fewer from typhoid fever than in the corresponding week of 1908, while deaths from diphtheria were increased by 12, nephritis by 14, and heart disease and cerebrospinal meningitis by 7 each. There were 905 cases of contagious diseases reported during the week, 88 more than for the preceding week, distributed as follows: Scarlet fever, 228; diphtheria, 175; tuberculosis, 119; measles, 110; chickenpox, 161; pneumonia, 55; typhoid fever, 46; whooping cough, 18; smallpox, 2, and diseases of minor importance, 52. Two cases of smallpox were found during the week, both unvaccinated men, one from Minnesota, and one employed on a railway running between Chicago and Pekin, Ill. At the latter place, it is reported that smallpox has existed for some time.

MARYLAND

Postgraduate Club.—The Springfield Hospital Book and Journal Club has been formed by the staff of Springfield Hospital and physicians of the vicinity. The object of the association is to follow the outline of study promulgated as a postgraduate course by the American Medical Association. Dr. J. Clement Clark is president, and Dr. John N. Morris secretary of the club.

Personal.—The directors of the Maryland State Tuberculosis Sanatorium have accepted the resignation of Dr. Bayard T. Crane, acting superintendent, and have elected as his successor Dr. Victor F. Cullen, formerly resident surgeon at St. Joseph Hospital, Blue Ridge Summit, Pa.—Dr. Frank W. Jarrett, Towson, is reported to be seriously ill.—Dr. Isaac A. Barber, Easton, is ill at Johns Hopkins Hospital, Baltimore.—Dr. Charles W. Rose, president of the Talbot County Medical Association, is reported to be seriously ill with pneumonia at his home in Cordova.

Baltimore

Adjunct Faculty Elects.—The Society of the Adjunct Faculty of the Department of Medicine of the University of Maryland has elected the following officers: President, Dr. Joseph W. Holland; vice-president, Dr. A. Duval Atkinson; secretary, Dr. Roscoe C. Metzger, and corresponding secretary, Dr. Arthur M. Shipley.

Personal.—Dr. Louis Seth, assistant resident physician at University Hospital, has been compelled to resign on account of ill health and has gone to the State Sanatorium for Tuberculosis.—Drs. Henry M. Baxly, Edward A. Munoz, and Edward E. Mackenzie have been appointed physicians to the Baltimore General Dispensary.—Dr. W. H. Higgins has been appointed a member of the staff of Johns Hopkins Hospital, and Dr. S. Griffith Davis has been appointed assistant to Dr. Harvey W. Cushing.

MASSACHUSETTS

Pure Milk Supply for Lawrence.—The Medical Club has appointed a committee consisting of Drs. W. Hall Coon, William H. Merrill, and George B. Largent to arrange for a suitable milk supply for the city of Lawrence.

Personal.—Dr. Mark W. Richardson has been elected secretary of the State Board of Health, vice Dr. Charles Harrington, deceased.—Dr. Gerald Blake has been appointed assistant in the Harvard Medical School.—Drs. Camillus T. Warner, Thomas F. McCarthy, William S. Richardson and Eugene G. Hoitt have been appointed members of the board of trustees of Marlboro Hospital.—The following physicians have been elected trustees of the State Hospital, Quincy: John A. Gordon, Nathaniel S. Hunting and John F. Welch.—Dr. Leonard Huntress has been elected chairman of the board of health of Lowell.—Dr. George F. Miller has been appointed a member of the Gynecologic Society of Carney Hospital, Boston, vice Dr. Eugene McCarthy, who has been appointed city physician of Fall River.

NEW YORK

Diphtheria Prevalent.—Niverville, Columbia county, is said to be having an epidemic of diphtheria. The principal of the public schools is ill with the disease and the school has been closed for two weeks.

Eye Hospital Incorporated.—The State Board of Charities announces that it approves the certificate of incorporation of

the Howe Eye Hospital of Buffalo. Through this certificate Dr. Lucien Howe of Buffalo is allowed to provide for the disposition of his property by the endowment of a hospital which will permit him to continue his present charitable work after the death of himself and his wife.

Vital Statistics.—During November, 10,306 deaths were recorded in the state, equivalent to an annual death rate of 14.5 per 1,000. During the same period 16,075 births were recorded. Deaths from typhoid fever increased 190, from tuberculosis 29, and from diarrhea and enteritis increased 100, while mortality from pneumonia decreased 838 as compared with the corresponding month of last year. The deaths from external causes included 119 suicides, 61 each from fractures, burns and scalds; 39 from drowning; 32 from inhalation of gases, and 99 from railway accidents and injuries.

Personal.—Dr. Martin Cavana, Oneida, has been seriously ill with septicemia due to an operation wound, at his sanatorium at Sylvan Beach.—Dr. Seymour C. Williamson, Canisteo, while making a professional call January 15, fell through a trap door of a barn and fractured his shoulder.—Dr. Alexander J. Dallas, Syracuse, the oldest practitioner of Syracuse, celebrated his ninetieth birthday anniversary, December 31.—Dr. Patrick H. Hourigan has returned to Buffalo after an absence of three years abroad.—Dr. John A. Hoffmeyer, a district physician of Buffalo, has resigned.

Antivivisection Bill.—Senator George A. Davis has introduced a new antivivisection bill into the legislature which has been referred to the judiciary committee. This bill requires that vivisection shall be performed only by persons holding certificates issued under the authority of a college, hospital or incorporated laboratory, or under the authority of the State Commissioner of Health, or a board of health, and in a building registered with the State Health Commissioner. The substance known as curare is not to be considered a general anesthetic. Vivisection experiments may be ordered by a court when considered necessary for purposes of justice.

State Society Meets at Albany.—The third annual meeting of the House of Delegates of the Medical Society of the State of New York was held at Albany January 25, and the one hundred and third annual meeting of the society January 26 and 27. Telegrams received as THE JOURNAL goes to press report a good attendance of the House of Delegates, 69 members being present at the first meeting. Reports of officers and committees for 1908 were presented and discussed, particular attention being given to the state journal and to the publication of the directory. The restriction of advertising of proprietary preparations in the publications of the society was discussed at length, the standard of the Council on Pharmacy and Chemistry being finally approved and adopted. The committee on legislation and the counsel of the state society were instructed to draft a bill for introduction into the legislature permitting the House of Delegates to select the time and place of the annual meeting, the present law under which the society is incorporated being mandatory on these points. A number of amendments to the by-laws were proposed and an unusually large amount of new business was presented to the house. The report of the committee appointed to cooperate with the committee of the American Bar Association on expert testimony was adopted. This committee presented a bill for introduction into the state legislature and designed to remedy the abuse of medical expert testimony. The following officers were elected: President, Dr. Charles G. Stockton, Buffalo; vice-presidents, Drs. Douglas C. Moriarty, Saratoga Springs; and John B. Harvie, Troy; secretary, Dr. Wisner R. Townsend, New York City; treasurer, Dr. Alexander Lambert, New York City. The House of Delegates voted to continue the publication of the directory, also to continue the defense of malpractice suits brought against members. A more detailed report of the session will appear later.

New York City

Personal.—Police Commissioner Bingham has appointed Dr. Francis J. Murray police surgeon to fill the vacancy caused by the death of Dr. Quigley.—Dr. Catherine Collins has been placed in charge of the manufacture of diphtheria antitoxin for the Georgia State Board of Health.

City Has Many Hospitals.—The New York Charities Directory for 1909 states that there are 226 hospitals in this city; of these 58 are general hospitals. The oldest hospital is the New York Hospital, incorporated in 1776. The directory calls attention to the lack of hospital accommodations for advanced cases of tuberculosis.

Milk Depots May Close.—The seven depots for the dispensing of pasteurized milk to babies, maintained by the New York City Association for Improving the Condition of the Poor, may have to close unless the sum of \$25,000 is raised immediately. These seven milk stations care for about 500 babies, each station being in charge of a trained nurse who instructs the mothers in the care of their infants.

Tuberculosis Exhibition Closes.—The tuberculosis exhibition at the Museum of Natural History, which has been open since November 30, closed January 17. The exhibit was open to the public for forty-nine days and during this time 750,000 persons visited it. The largest attendance was on December 21, when 63,256 persons visited the museum. The total cost was slightly over \$37,000. Of this sum the city appropriated \$13,000 and private individuals gave \$9,000. There is still a deficit of \$16,000.

Coroners Assail Doctors.—In the report of the coroners of New York county, just issued, it is declared that some doctors issue death certificates without having seen the bodies they attempt to describe, and that others demand autopsies simply for the purpose of adding to their own knowledge. It is also stated that undertakers have gone so far as to embalm bodies before they had the permission of the coroner. They suggest that there should be legislation to prevent undertakers from embalming a body until the death certificate has been accepted by the proper authorities, and if rejected, the body should not be embalmed until the coroner has determined and attested the cause of death. The physician should also be compelled by law to examine the body before certifying to death; where a physician has not seen a patient for several days prior to death, the relatives have mistaken suspended animation for death, and the physician has signed the certificate on the word of the friends.

PENNSYLVANIA

New Society.—Women physicians of Pittsburg met in East Liberty, January 7, and organized the Woman's Medical Society of Pittsburg. Dr. Adaline M. Watson presided. At its next meeting officers will be elected and a constitution and by-laws adopted.

Personal.—Drs. Orr H. Shaffer, William S. Ross, Joseph D. Findley and William H. Howell, Altoona; Dr. John L. Brubaker, Juniata; Dr. Henry H. Brotherlin, Hollidaysburg; Dr. W. Albert Nason, Roaring Spring, and Dr. H. B. Deitrich, Williamsburg, have been appointed local surgeons to the Pennsylvania System.—Dr. F. J. Spilman, Connellsville, returned January 5, from a trip abroad.

State Charities' Requests for Aid.—The report of the State Board of Charities was completed, January 19, and was submitted to the legislature, January 20. The report shows that the different institutions applied for appropriations amounting to \$19,534,625.01, and that the board has recommended for maintenance and buildings \$11,321,669.66. The total amount recommended to the present legislature is \$400,769 less than was actually appropriated at the last session. The board has reduced the appropriations applied for by hospitals for maintenance, but has increased the allowances for buildings over that of 1907.

Philadelphia

Personal.—Dr. Henry W. Stelwagon has been elected to associate membership in the Vienna Dermatologic Society.—Dr. W. T. Grenfell, known throughout the world as "the patron saint of Labrador," gave a course of six lectures in Philadelphia and its suburbs the week of January 24, under the auspices of the Grenfell Association of America, to secure funds to further the establishment of a fishermen's and seamen's institute at St. Johns, N. F.

VIRGINIA

Personal.—Dr. Lucien C. Smith, Alexandria, is reported to have been appointed chief surgeon to a railroad in Brazil.—Dr. George A. Storer, South Boston, has gone to Richmond to take treatment in the Pasteur Institute.—Dr. Reid White has succeeded Dr. Harvey Laird, resigned, as surgeon to the Virginia Military Institute, Lexington.—Dr. Irene Bulard, assistant physician at the Eastern State Hospital, Williamsburg, has resigned. Dr. Junius N. Stephenson, Petersburg, has been made first assistant physician at the Southwestern State Hospital, Marion.

Instructions Regarding Tuberculosis.—The Board of Health of Richmond has issued a sixteen-page pamphlet, prepared by Dr. Ernest C. Levy, chief health officer, on "Tuberculosis. Its Causes, Prevention and Cure" for use in the upper and

middle grades of the public schools of the city. The pamphlet treats plainly of the history and cause of tuberculosis; of the prevalence of tuberculosis in the United States; avers that tuberculosis is preventable and why, and that it is not hereditary; describes the method of spread of the disease and details the precautions that should be taken by tuberculous patients to avoid communicating the disease to others; states that the careful consumptive is not dangerous, that tuberculosis attacks only weakened bodies; gives particulars how the body may be strengthened, and details the method of cure of tuberculosis by fresh air, food, rest etc.—On January 10, under the auspices of the health department of Norfolk, twenty physicians of that city delivered addresses from the pulpits of the colored churches on the ravages caused by tuberculosis.

GENERAL NEWS AND COMMENT

Plague Rats Found.—Inspector Bowman of the Hawaiian Territorial Board of Health has reported to the board that he found 44 dead rats in near proximity to the city stables of Hilo, and that of these 32 were infected with plague.

Tuberculosis Exhibit in Porto Rico.—The National Association for the Study and Prevention of Tuberculosis has shipped a traveling tuberculosis exhibit to San Juan, which will be shown later in all the important towns of the islands.

Personal.—Dr. H. A. Gantt, Aguascalientes, Mexico, who accidentally shot himself early this month, is rapidly improving.—Dr. J. C. Perry, P. H. and M.-H. Service, has arrived at New Orleans from the Canal Zone, en route to Mobile.

Physicians Wanted.—The United States Civil Service Commission announces an examination to be held at various places February 17 and 18, to fill seven vacancies in the position of medical inspector, \$2,000 per annum each, in the Philippine service, and vacancies requiring similar qualifications, as they may occur in that service, at salaries ranging from \$1,250 to \$1,800 per annum. Applications should be made to the United States Civil Service Commission, Washington, D. C., or to any board of examiners for application form No. 2 and No. 375.

Sanitation of Canal Zone.—During November the sick rate of the Canal Zone was 27.16 per 1000. The death rate for employes was at the annual rate of 11.50 per 1000. The deaths of employes numbered 40, 31 from natural causes and 9 from violence. The death rate of the total population for the month was at the annual rate of 23.71 per 1000, which compares very favorably with 28.86, the rate for November, 1907. There has been no case of yellow fever since May, 1906, nor has there been a case of bubonic plague since August, 1905, although both diseases exist within three days' sail of the ports of Colon and Panama.—During December the sick rate was 25.95 per 1000. The death rate showed a considerable increase over November, 48.6 of the mortality being due to violence. Eliminating deaths from this cause, the death rate from disease shows a great improvement over the same period of last year. There was a diminution of 214 cases of malaria as compared with the preceding month. During the month there were 124 deaths, equivalent to an annual death rate of 20.75 per 1000.

The Antivivisection Controversy.—The Committee on Experimental Medicine of the Medical Society of the State of New York has begun the publication of a series of leaflets setting forth the scientific and medical side of the antivivisection controversy. The publication of these leaflets is in the hands of a committee, consisting of Drs. Frederick S. Lee, Simon Flexner, and James Ewing. Ten leaflets have already been issued, covering various subjects, such as "Animal Experimentation and the Action of Drugs," by Prof. R. A. Hatcher; "Animal Experimentation as Viewed by Laymen," by Charles W. Eliot, President of Harvard University; "The Function of the Thyroid Glands," by Dr. Samuel J. Meltzer, of the Rockefeller Institute for Medical Research; "Animal Experimentation and Diphtheria," by Dr. William H. Park; "Animal Experimentation and Tuberculosis," by Dr. Edward L. Trudeau; "The Sense of Pain in Man and the Lower Animal," by Dr. Frederic S. Lee; "Animal Experimentation and Cancer," by Dr. James Ewing; and "Lord Cromer's Defense of Animal Experimentation" and "Animal Experimentation and Infectious Diseases," by Dr. Simon Flexner. Each of these leaflets is an argument to show the humanitarian aspect of animal experimentation, and the committee is to be congratulated on what it has already accomplished. Copies of these leaflets may be obtained by addressing the Medical

Society of the State of New York, 17 West 43rd St., New York City.

Society Meetings.—The twelfth annual meeting of the Society of College Gymnasium Directors was held in New York City, December 31 and January 1. After reading of papers and reports, the gymnasium of the College of the City of New York was inspected. The name of the society was changed to "The Society of Directors of Physical Education in Colleges." The following officers were elected: President, Dr. R. Tait McKenzie, University of Pennsylvania; vice-president, Dr. George L. Moylan, Columbia University; secretary-treasurer, Dr. Paul C. Phillips, Amherst College; and executive committee, the president, vice-president, secretary, and Drs. James A. Babbitt and James Naismith.

—At the annual meeting of the Pi Mu Medical Fraternity, in Richmond, Va., December 19, Dr. W. A. Shepherd, Richmond, was elected senior counselor; Dr. John R. Wright, Louisville, junior counselor; Paul Horole, Richmond, general secretary; Dr. Lawrence T. Price, Richmond, general treasurer, and Dr. Alfred L. Gray, Richmond, historian.—The Northern Tri-State Medical Association of Ohio, Indiana and Michigan, at its annual meeting held in Ann Arbor, January 12, re-elected the following officers: President, Dr. William A. Dickey, Toledo; vice-president, Dr. C. B. de Nancrede, Ann Arbor; secretary, Dr. George W. Spohn, Elkhart, Ind., and treasurer, Dr. Joseph A. Weitz, Montpelier, Ohio.—The Chattahoochee Valley Medical and Surgical Association held its annual meeting in Opelika, Ala., January 12 and 13, and elected the following officers: President, Dr. Aaron L. Harlan, Alexander City, Ala.; vice-presidents, Drs. Homer S. Bruce, Opelika, Ala., and W. L. Cooke, Columbus, Ga.; secretary, Dr. William J. Love, Opelika, and counselor, Dr. James P. Watkins, Opelika (re-elected). The next semi-annual meeting of the society will be held in Lafayette.

CANADA

Hospital Notes.—The St. Catharines (Ont.) City Council has donated \$1,000 for the inauguration of a hospital for consumptives in that city. Capt. R. W. Leonard of the same city has donated \$3,000 to the purpose and the Daughters of the Empire have collected another \$3,000.—The city is asking the Ontario government to increase the grant for municipal sanatoria from \$4,000 to \$10,000.—A new hospital is to be opened in Montreal under the name of the Hospital St. Luc. Its work is to be especially among the school children of that city, particular care being paid to cases of eye, ear, nose, throat and mouth.

Typhoid Epidemic in Montreal.—Every hospital in Montreal is taxed to its utmost capacity owing to the outbreak of typhoid in that city, some of the hospitals having to open new wings in order to accommodate the typhoid patients. The incidence of the outbreak occurred immediately after Christmas; probably the Montreal turkey or plum pudding was infected. It is estimated that throughout the city generally there are between 800 and 1,000 cases of the disease. The Medico-Chirurgical Society has taken a hand in the matter and has joined with the French Medical Society and the Engineering Society in bringing the question of Montreal's water supply prominently before the city council and the citizens. During the past five years Montreal has had an exceedingly large death rate from this disease. In 1903 it was 31.45 per 100,000; 1904, 31.89; 1905, 18.11; 1906, 37.08; 1907, 33.26.

Consumption of Alcohol and Tobacco.—During the official year 1907-1908, there was taken for consumption in Canada, 6,849,763 proof gallons of alcohol, there being consumed in the process of manufacture 7,679,000 pounds of malt; 72,997,000 pounds of Indian corn, 14,921,000 pounds of rye, 3,117,000 pounds of wheat, 395,000 pounds of oats, and 17,212,000 pounds of molasses. In the matter of production Ontario is the great whisky province, seven of the twelve distilleries in the domain being located within her boundaries. While the increase in the production of spirits is small compared with that of beer, it is claimed that temperance sentiment is advancing, as is evidenced by the greater increase in the production and consumption of beer. It is shown from 1869 on that there has been a regular decline in Canada in the consumption of spirits, as in the former year the amount consumed per head of the population was 1.124 gallons; now it is 0.889 of a gallon. The consumption of beer has, however, been steadily on the increase, having risen from 2.290 in 1869 to 5.812 gallons per head in the present fiscal year. Last year the cost of tobacco was 1.129 per capita, while in 1896

it was hardly 61 cents. There were 32,088,000 pounds taken for consumption. There were also consumed 200,133,000 cigars and 385,000,000 cigarettes. Cigarette smoking is said to be apparently rapidly becoming the favorite form of using tobacco in Canada.

CUBAN LETTER

(From Our Occasional Correspondent)

HAVANA, CUBA, Jan. 16, 1909.

A Department of Public Health for Cuba

Now that the medical profession in the United States has decided that a department of public health in some form is necessary, and is struggling with the various propositions under discussion, uncertain whether it shall take the form of a neoplasm in the interior, or an elephantiasis in the treasury, or a new baby in the cabinet, it is interesting to know that the young Cuban republic, having been safely nursed through its recent attack of eruptive fever, comes out with a fully developed executive department of public health. Among the eight secretaries who will compose the cabinet of the newly elected president, according to a decree recently signed by the provincial governor, is the Secretary of Sanitation and Charities, or *Sanidad y Beneficencia*, to use the official Spanish title.

The new law provides that the department shall consist of the two sub-departments (called *direcciones*) of Sanitation and Charities, at the head of each of which is a director, and of the National Board of Sanitation and Charities. The composition and duties of this board will be mentioned later.

ORIGIN OF THE DEPARTMENT

The beginning of a national sanitary department goes back to the end of the former government of intervention when Gen. Leonard Wood, three days before establishment of the republic, issued a decree providing for a national board of health. This law, which was drawn up by a commission, of which Drs. W. C. Gorgas, J. R. Kean, Diego Tamayo and A. H. Glennan were members, was excellent in theory and gave extensive powers to the national board, but it did not provide the necessary machinery by which these powers could be administered, operating as the board was compelled to do through the local boards of health of the various municipalities over whose personnel and finances the national board had but nominal control. Another defect in this law was the failure to place the quarantine service under the authority of the board. This organization accomplished much excellent work during the presidential term of Estrada Palma, but it was unable to exert any effective influence over the municipalities whose sanitary matters fell into a condition of utter neglect, except in Havana and a few other cities where the national treasury came to the rescue. The next step in advance was the enactment by Governor Magoon of the excellent sanitary law of Aug. 26, 1907, which at one stroke removed all difficulties connected with the question of municipal administration, by abolishing the local boards of health and taking over the sanitary services of all the municipalities in the same way as is done in the case of the postal service in the United States. These municipal services are administered by local sanitary officers appointed and paid by the national government, which also provides the appropriations for all other sanitary expenses. The municipalities, however, are required to pay in part reimbursement to the national treasury one-tenth of their incomes. These local sanitary officials are also given the power to impose fines, the persons fined being, however, allowed the right of appeals to the courts.

QUARANTINE SERVICE

The quarantine service was by another decree made an integral part of the Sanitary Department, constituting as it does the first line of national defense against epidemics. This law has worked successfully for a year and a half, and the cleanliness of the Cuban cities is now a matter of universal remark among the American visitors to the island. It has also given great satisfaction to the Cuban people, who are alive to the desirability of good sanitary conditions for local

as well as international reasons. This law is not repealed or affected by the creation of the new department, except that the administrative powers of the National Sanitary Board will be hereafter divided between the Director of Sanitation and the Secretary of the Department, the duties of the new Board of Sanitation and Charities being principally of an advisory character. These administrative powers are ample, embracing the control of epidemic and contagious diseases, sanitary investigations respecting the cause of diseases, including those of animals which affect man, the enforcement of all sanitary laws and regulations with regard to water supply, sewerage, disposition of refuse, adulteration of food products, beverages and drinks, and those referring to the importation and treatment of food animals. The department is charged with the collection of vital statistics, and has power to require reports from all public institutions, places of public resort and common carriers. It sees to the enforcement of sanitary laws, including the laws governing the admittance of persons to the practice of medicine, veterinary medicine, pharmacy, dentistry, midwifery, embalming, undertaking, and the regulation of prostitution, and laws for the control of offensive and dangerous industries or occupations. It has charge of hospitals for contagious diseases, dispensaries and sanatoriums for tuberculosis and leprosy, and maintains a vaccine establishment and a biologic, chemical and bacteriologic laboratory in Havana.

The official in charge of sanitary affairs in each municipality is called the local sanitary officer. In addition to enforcing all sanitary laws and ordinances, he maintains the following sanitary services: 1. Street cleaning and sprinkling. 2. Removal of garbage and other wastes. 3. Disinfection, public and private. 4. Filling and draining when necessary for the health of the community. 5. Cleaning of cesspools and other collections of filth, in public properties and, when necessary, in private properties, the cost in the latter to be collected from the owner.

It should be remarked that the municipalities in Cuba are not exclusively urban, but include large rural areas also, the island being divided into eighty-two municipal districts, each with its head town. The relation of these to the national government is somewhat similar to that of New England townships to the state.

THE DEPARTMENT OF CHARITIES

The sub-department or Department of Charities is of far older establishment in the Cuban government than that of sanitation, having existed from early times. The law establishing the new department has codified all the existing laws with reference to charities, the basis of such codification being the well-known and excellent law drawn up by Mr. Homer Folks of New York in 1900 at the request of General Wood. The only important changes in this law have been the taking away of administrative authority from the superior board of charities and vesting it in the secretary of the department and director of charities, and in the same way vesting in the superintendents of institutions the administrative powers which were heretofore held by boards of trustees of such institutions. The duties of such boards are now limited to inspectorial and advisory functions. The reason for this change is the same as for the abolition of the local boards of health—the absolute failure of government by administrative boards in Cuba. This is due partly to lack of interest on the part of members of the board, and partly to the impossibility of fixing the responsibility for neglects.

The *Dirección de Beneficencia* administers twenty-five free government hospitals throughout the island, to six of the most important of which are attached nurses' schools. It also administers correctional schools for children of both sexes, to which the law requires to be sent all children under the age of 16 convicted of crimes or misdemeanors by the courts, calling for imprisonment. The terms of commitment are indeterminate and dependent on good behavior. It administers the hospital for the insane at Mazorra, near Havana, which contains over 2,000 patients. It maintains a bureau for placing children in families, which has been of greatest value in

caring for orphans of the reconcentration, and is operated in a very satisfactory manner. The director of charities is authorized to call for annual reports from all private charitable institutions and to inspect them annually or at more frequent intervals, to determine whether they fulfill the objects for which they were established. It is declared by the law to be the duty of the department of Sanitation and Charities to extend protection to the insane, imbeciles or other inhabitants of the state who must be supported by public charity or at the expense of private societies or institutions of charity or those of a religious character. The funds devoted to this purpose by the state, by individuals or by charitable institutions are also declared to be under the protection and safeguard of the state, in order to prevent them from waste or misappropriation.

THE BOARD OF SANITATION AND CHARITIES

The national board of sanitation and charities is composed of twelve members, most of them *ex-officio* in character. They are the director of sanitation, director of charities, the chief of the quarantine service, the president of the board of diagnosis of contagious diseases, the president of the commission of special hygiene, the president of the antituberculosis league, the dean of the medical faculty of the University of Havana, the president of the economic association, and four other members selected by the president, among whom must be one lawyer and one engineer. The duties of the board are mainly advisory in character. It makes studies of sanitary projects and laws and renders expert reports thereon for the information of the secretary and advises him of the effects of sanitary legislation; it hears complaints and petitions of a general character referring to sanitary and charitable matters. It is also charged with the investigation of abuses committed in charitable institutions and complaints against the officials thereof, and for the purposes of such investigations, has the power to administer oaths, call witnesses and demand the production of books and papers. Members of this board receive a fee of \$15 for each meeting attended by them, provided the total of such fees does not exceed \$90 in any one month.

Dr. Nicolás Alberdi has been selected by President-elect Gómez to be the first secretary of the new department, and for the director of sanitation has been chosen Dr. Juan Guiteras, the distinguished yellow-fever expert, whose name is so well known to the medical profession in the United States. The department has a well-trained personnel, and if it can be kept out of the domain of Cuban politics we shall have every reason to expect a continuation of the present highly efficient administration which has made Cuba cease to be a dangerous neighbor.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 19, 1909.

Results of the Paris Medical School Riots

The grave troubles that I recorded in my letter of December 24 have had as their first effect the suspension of the competitive examination for "admissibility to the *agrégation*." But in face of the disturbances aroused by this unlucky *concours*, not only in the medical world, but also in political circles, it is a question whether the suspension will not finally result in its total suppression. [The diploma to be obtained at this competitive examination entitles the holder to compete for the subordinate chairs in the medical faculties.—E.]

There reigns everywhere at this moment the greatest animosity against the promoter of this *concours*, Professor Bouchard. Arbitrary in character, allowing neither discussion nor contradiction, Bouchard, who for many years has exercised a great influence in the ministry of public instruction, had already rendered himself very unpopular by a series of measures objectionable to the medical profession, such as the establishment of the P. C. N. (preparatory year of physical, chemical and natural science studies), etc. The fact that Bouchard, as president of the board of the competitive examination, appealed for armed protection as a preventive measure, that is to say, before any disorder whatever had justified so grave a proceeding, has everywhere aroused the most lively protests. The municipal council has since voted a reso-

lution expressing regret at the disorderly incidents that had occurred at the medical school, and censuring the precautionary introduction of police in the interior of the Faculty of Medicine. Further, M. Clemenceau, the premier, has ordered the prefect of police not to obey in the future any requisitions of this character made as a preventive measure. A delegation of the syndicate of physicians of the department of the Seine has been received in audience by the president of the republic and incidents were related bearing on this *concours d'admissibilité à l'agrégation*; the reorganization of the medical curriculum was also discussed. M. Fallières gave the delegation a very cordial reception and his support seems to be assured to the legitimate demands of the practitioners.

But it is unfortunately to be feared that the syndicate has gone too far in its protestations and its demands. For instance, in a circular letter addressed to all the physicians of Paris, the syndicate, after recounting the incidents that took place at the opening of the *concours* declares that "these facts demonstrate that the dean of the Faculty of Medicine of Paris has no longer the moral authority necessary to represent the medical profession; the representative of the medical body can be only one of ourselves, elected by all his confrères and having no official ties." It is an entire misconception of the rôle of the dean of the Faculty of Medicine to think that he is called on to represent the medical profession; he represents only the faculty, the organization of which evidently should not depend on the syndicate of physicians.

Opium Dens in Paris

The Ullmo affair has revealed in a startling fashion the disquieting progress that the opium habit has made during recent years in our garrison ports. The minister of the interior has recently issued a decree regulating in France the sale, purchase and use of opium and its extracts. This decree particularly specifies that the importers shall not sell the opium in any quantity except to wholesale merchants, for industrial purposes, or to chemists to transform it into the official opium or to extract the alkaloids, and to pharmacists for therapeutic use and under certain conditions. Official opium and its extracts are not permitted to be sold by pharmacists except for use in medicine. Outside of these conditions, every delivery of opium or its extracts, even gratuitously, is forbidden under pain of a fine of from 100 to 3,000 francs, and imprisonment for from six days to two months. It is also forbidden, under the same penalties, to connive at the prohibited keeping and use of opium by granting the use of a room or by any other means.

This rigorous repression is only too fully justified by the disquieting proportions that this degrading vice has taken, not only in Toulon and other garrison ports, but even in Paris itself. Investigation a few days ago disclosed the fact that several merchants had installed on their premises secret opium dens, where the habitués could obtain—naturally at elevated prices—everything necessary for the satisfaction of their degrading passion. What measures of defense are to be taken against this scourge are being studied at the present moment by an international conference summoned for the purpose at Shanghai.

The French Red Cross and the Catastrophe at Messina

The three societies for aid to the wounded which form the French Red Cross, have decided to unite in aiding the victims of the earthquake in Sicily and Calabria. A central committee has been constituted, with the Marquis de Vogüé as president, which is composed of delegates from the French Society for Aid to Wounded Soldiers, the Union of the Women of France, and the Association of French Dames. An advance body, consisting of ten trained nurses set out on December 31; a second detachment, charged especially with the care of the wounded during their transportation from Messina to Naples on one of the vessels sent by the minister of marine, departed the next day, carrying 3,000 kilos of material for the wounded—linen and various dressing materials, fracture apparatus, medicines, bedclothes, coverings, woolen clothing, etc.

End of the Yellow Fever Epidemic at Martinique

The governor of Martinique has just informed the minister of the colonies by cablegram that no case of yellow fever has been notified since Dec. 22, 1908. Consequently the governor, by agreement with the health service (*service de santé*), thinks it possible by taking certain precautionary measures to reduce the severity of the measures of evacuation previously instituted.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Jan. 4, 1909.

Physicians Win from Insurance Companies

The disagreement of physicians and life insurance companies, referred to in my last letter, was happily settled before the end of the old year. By the intervention of a high official, an agreement between the two parties was reached by which the demands of the physicians were granted for the most part. According to his agreement, the medical examiners for the company are to be paid a fee of 6 marks (\$1.50) for examination of applicants for insurance up to 2,000 marks (\$480), and 12 marks (\$3) for examination of applicants for insurance up to 6,000 marks (\$1,440), and 15 marks (\$2.75) for amounts over this sum, with a fee of 7.50 marks (\$1.87) for the certificate of the family physician. As before, there is to be a standing committee formed of representatives of the physicians and of the life insurance companies which shall settle the differences between them. In this way it is to be hoped that this fight, which the German medical profession has carried on with gratifying unanimity, has been ended. But it is very much to be desired, both in the interests of the medical profession and of the public, that a physicians' "strike" shall not occur again. Such a movement on the part of physicians is surely opposed to the ethical aims of their calling. We can not, as a matter of principle, refuse our aid without conflicting with the duties of our profession. It ought to be possible in most cases to settle the points of dispute and reach a satisfactory conclusion of the negotiations in a peaceable way, possibly by the intermediation of some disinterested person of authority as in this case.

Russian Institute for Medical Consultations

There has existed in Berlin for some years a Russian institute conducted by a German physician and a Russian, ostensibly but not actually a doctor of medicine, established for the apparently worthy purpose of serving Russians who come to Berlin by directing them to suitable physicians. Every one who became acquainted with this institution suspected that it was run less in the interests of the Russian patients than for the commercial advantage of the managers and the further developments of the institution have more than abundantly confirmed this suspicion. The commercial methods of the conductors of the institutions were very clever. To establish the reputation of the institute among Russian physicians who send their patients here, the directors secured some of the principal medical authorities to deliver lectures at their institution. The method which they followed was that of the "stool pigeon." First they secured the late von Bergmann, who being of an idealistic nature, did not recognize the commercial basis of the undertaking and supposed that he was rendering a service in establishing closer relations between Russians and Germans. After von Bergmann had indicated his readiness to serve the institute, von Leyden, who notwithstanding better insight into the true inwardness of the matter, had no objections to assist the undertaking, was placed on the list of lecturers, and then all was clear sailing for the institution, for to an enterprise to which such illustrious men had given their assistance no one else need refuse his aid. As equivalent for the lectures the professors received Russian patients, referred by the directors of the institute, and this was indeed a subsidiary, not to be underestimated, result of the scientific addresses. Of course, the directors of the institute received pay for their services from the patients who entrusted themselves to them. But this did not exhaust the profits of these gentlemen; they sent their patients to such consultants as paid more or less for such recommendations.

Copper in Canned Spinach

The Scientific Commission for Medicine in Prussia has reported to the effect that the customary addition of copper to canned spinach, for the preservation of the green color, should not amount to more than 55 mg. pro. kg. ($\frac{1}{2}$ grain to the pound). Within this limit no injury to health need be feared. It may be noted that in Austria the same proportion is permitted by the authorities.

Esperanto in Medicine

As a result of the international Esperanto congress, held recently in Dresden, the first German local group of the International Esperanto Medical Association has been founded in Berlin. Its title in its new language is "Tutmonda Esperanta Kuracista Asocio."

The Physicians of Germany in 1908

The medical statistician, Dr. Prinzing, publishes in the *Deutsche medizinische Wochenschrift* some interesting statistics in regard to the medical profession in Germany in the year 1908. The physicians of Germany numbered last year 31,640, and 553 new licenses were granted. A considerable increase is to be expected soon, as in consequence of the lengthening of the medical course a few years ago the number of those who are finishing their studies is temporarily reduced. As formerly, the large cities still attract the larger proportion of physicians. Greater Berlin, i. e., Berlin with its 21 suburbs, has 3,732 physicians, and in the other large cities there were altogether 8,900, making in all 12,632, in contrast with 19,008 in the rest of Germany. For 10,000 inhabitants there were in Greater Berlin 12.3 physicians; in other large cities 9.2; in all the large cities 9.9, in contrast to 3.8 for the rest of Germany. Among the individual large cities. Wiesbaden had proportionally the most physicians, 25.8 per 10,000, followed by Munich with 15.8, Strassburg 14.2, Kiel with 13.1, and finally Greater Berlin with 12.3. Duisburg had the least (3.0). The number of licensed women physicians in Germany amounts to 55, who are all located in the large cities. In Berlin alone there are 17, in Breslau 5, in Frankfurt a. M. 5, in Munich 4, in Hamburg and Dresden each 2. Most of them devote themselves to general practice, but many to gynecology and diseases of children. The development of specialism has made further progress. In the large cities there were in 1908 for 10,000 inhabitants, 3.44 specialists and 6.50 other physicians. Among 100 physicians 34.6 were specialists. The number of specialists has increased about 9 per cent. in the large cities during the last three years, and that of practicing physicians only about 4 per cent. In Greater Berlin the number of specialists has risen to 1,194. Of the single specialties, the number of physicians for mental and nervous diseases shows the greatest increase, next orthopedists and surgeons, then physicians for children's diseases.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Jan. 10, 1909.

Proposed Insurance of Wage-Earners

A very important bill, entitled the Social Insurance Act (*Sozialversicherung*), is now under consideration. Its bearing on medicine is great, as it will influence markedly the general health and physical development of the masses. The act unites the hitherto separated branches of insurance, namely, insurance against illness, accidents, old age and invalidism. It raises the maximum income which entitles the earner to free insurance to about \$600 a year; the number of persons coming under its operation is 6,500,000. Hitherto the maximum income of persons entitled to free insurance was about \$240, and 3,000,000 came under the operations of the law. There is no change in the numbers of those interested in the accident-insurance clause (3,000,000).

The third clause, however, is a new feature on the program of social legislation. Over 10,000,000 wage-earners come under its provisions, and there are no precedents as to its operation in this or other countries. The insurance against illness provides for free medical and therapeutic aid of all kinds. A definite daily allowance, according to earnings, and, if necessary, hospital fees, are to be paid. Hitherto only workers in factories and shops were entitled to such insurance; but hereafter all agricultural laborers and domestics will have a right to it, and by the payment of premiums they may secure the same advantages for their families. The benefit will be obtained as long as the illness lasts; if the duration is more than a year, the patient is pronounced an invalid and receives his pension accordingly. Those who are ill will never be without aid.

Naturally, there will be great numbers of medical men to be appointed. The doctors of the present *Kasse* complain that they are overburdened, although the *Krankenkasse* (the present insurance institution) gives medical aid only for twenty weeks. The bill will materially affect the prospects of the profession, as the enormous amount of medical work to be done will mean a large number of fixed medical appointments. The patient, however, will have his choice of the doctors appointed. The *Krankenkasse* will have to make written appointments with the doctors, subject to the approval of the medical council (*Ärzte-Kammer*) of each district. A special insurance court will settle any disputes between the *Kasse* and its doctors. The increase in the number of those insured will also cause the erection of many small hospitals, as the

Kasse, which will have to pay the hospital fees of the patients, will probably erect its own hospitals. The *Kasse* already has to pay about 25 per cent. of the hospital fees in this country (about \$1,000,000).

The act endeavors to provide for women at childbirth. The pregnant woman will receive daily relief amounting to 150 per cent. of sick pay for one week before and four weeks after giving birth to a child; if she continues ill for a longer period, sick pay will be granted, but the woman must not go to work so long as she receives relief. A minimum period of six weeks has been demanded for convalescence, since this would tend to increase breast-feeding. A "breast-feeding premium" has also been suggested; but it is doubtful whether the government will concede that.

Those entitled to insurance against invalidism will comprise about 30 per cent. of the population. The yearly payment to those invalided will vary from 125 to 560 crowns (\$25 to \$112); it will depend not only on the number of premiums paid, but on the earning capacity during activity. The term "invalid" is thus defined: Whoever is incapacitated from earning one-third of the sum which healthy persons of his age and abilities can earn at his place of residence, is termed an invalid. Incapacity may result from age, disease, or other causes. Special care will be taken to place patients in sanitariums, homes for convalescents and open-air institutions.

Accidents are to be treated for one year as illnesses, with the right to sick pay; if the effects of the accident last longer, a special accident payment is to be made, according to special schedules. A new valuation of the various organs and members of the body is also given in the act. Special medical experts will be appointed to examine the victims of accident and to direct the treatment. The maximum yearly payment to a person totally disabled by injury will be 1,200 crowns (\$240). If the disabled person must be nursed by others, he will receive 50 per cent. more (\$360). The *Kasse* will have the right to inspect industrial concerns with a view to lessening the risks of workers. All facts coming to the knowledge of the officers of the *Kasse* are to be treated as professional secrets.

The sum of 288,000,000 crowns (\$58,000,000) will be necessary to meet the expense of this almost universal insurance, besides a yearly payment by the state amounting at first to \$8,000,000, and increasing up to \$20,000,000. The necessary funds are to be obtained, in the case of insurance against illness, by payment of one-third of the premium by the employers, and two-thirds by the employees. The expense of insurance against accident is to be borne by the employer, while the costs of the old age and invalid pensions are to be borne by the insured.

The medical profession will make strenuous efforts to lower the maximum limit of income entitling the earner to free insurance, since private practice, to a large degree, will be cut off by the increase. On the other hand, the act has undoubted advantages, both for the public and for the profession, and it will not be hard to strike a favorable balance.

Pharmacology

THE TURNCOCK MEDICAL COMPANY

It Refers Its Victims to "Any Chicago Newspaper" and One Newspaper Responds

The consideration which has been accorded quacks and nostrum mongers by the daily press—thanks to their extensive advertising patronage—has led to a slight misapprehension in some quarters. Some misguided fakers have at times thought that they owned the press—that all they had to do was to crack the whip and watch the journalistic trick-dog jump through the hoop. In some cases the gentlemen afflicted with this obsession have been severely jarred back into the world of realities.

A recent case of this sort was that of the Turncock Medical Company of Chicago. This concern is one of those which advertise to cure rheumatism and uric acid diseases for \$3.00—more or less. A patient who had sought a long-distance diagnosis from these "noted specialists" found that he had been forwarded unasked a bottle of Dr. Turncock's Genuine Discovery, for which he was requested to remit \$3.00. This he refused to do and his refusal brought from the company

one of those strictly private, personal and confidential, heart-to-heart circular letters which play so important a part in the quack's armamentarium. The "letter" was signed by Dr. T. Frank Lynott. As to the company's ability, reliability and responsibility, Dr. Lynott referred the victim to "the editor of any Chicago newspaper." Dr. Lynott pointed out, further, that the cost of the "whole treatment of medicine" was "simply the price of a single visit to any reputable physician" and that "I charge nothing extra for my professional services."

The argument, of course, is not a strong one, as the relation between "any reputable physician" and Dr. Turncock's Genuine Discovery as administered by Dr. Lynott is not clear. So, evidently, the patient thought, for he wrote to the editor of one of the Chicago newspapers. Unfortunately for the medical company, it was the *Chicago Tribune* that was consulted and this paper responded to the inquiry with a column writeup of the Turncock Medical Company. It showed that some other "references" given by the concern in its advertising matter were equally unauthorized. The names of an alderman, of the director of a conservatory of music, and of a druggist, all of Chicago, had also been included in the company's mythical list of "references." Each of these persons repudiated the use of his name in this connection and the opinions of the medical concern as expressed by the victims were the reverse of complimentary. Unfortunately for the individuals concerned, there seems to be no legal process which can be invoked against the company. In the future when Dr. Lynott gives Chicago newspapers as references, he would better add parenthetically—except the *Tribune*. And that will be about as complimentary a thing as any newspaper could wish!

HEALTH GRAINS

A Mixture of Sand, Syrup and Rock Candy as a Therapeutic Agent in Dyspepsia

One of the unique fakes examined in the Association laboratory is a conglomeration, sold under the name of "Health Grains," manufactured by "The Health Grains Co., Westchester, New York City."

The preparation is offered as "A remedy for Dyspepsia, Indigestion, Nervousness, etc." It is sold in round tin boxes, each wrapped in a circular bearing the name of the maker and the place of manufacture. It is guaranteed "that the contents of this package complies with the requirements of the Pure Food and Drugs Act." Inside the box is a small sheet of "directions" giving the following advice:

"Do not chew or grind Health Grains between the teeth, but roll them around slowly, until they have become saturated with saliva, then swallow them."

"One scant teaspoonful constitutes a dose. Take one or two doses after a light meal, two or three after a heavy meal. Doses should be taken separately. If your stomach keeps you from sleeping, take from one to three doses."

"Do not overeat. Avoid eating what you know disagrees with you."

The grains have the appearance of coarse sand covered with a sticky substance. They are odorless and when first taken into the mouth are sweet in taste. When ground between the teeth they exhibit unmistakable signs of hardness. Chemical analysis demonstrated that the nostrum contained 87.50 per cent. of coarse quartz sand and 12.50 per cent. of soluble matter. The soluble matter was found to be rock candy and syrup. The presence of heavy metals, iodids, bromids, alkaloids or acids could not be demonstrated. Health Grains, therefore, appear to be nothing more than ordinary sand mixed with a little rock candy and syrup, showing an originality of composition, surpassed only by the credulity of the consumers of such a nostrum.

SOUR MILK THERAPY

The present interest in what may be called "sour milk therapy" in intestinal putrefaction makes the article by P. G. Heinemann in this issue a timely one. While much of the work done on the subject seems to show that lactic acid or lactic ferments possess value in cases of intestinal putrefaction, the question has in no sense been settled. Still less has

it been proved that the *Bacillus bulgaricus* as a lactic acid producing organism possesses the advantages in arresting putrefaction which Metchnikoff originally claimed for it. Because of the unpleasant taste produced by the *B. bulgaricus*, Metchnikoff has urged that the paralytic bacillus (*Streptococcus lacticus*) be used in combination with it. It is therefore, doubtful which of these two organisms is responsible for any resultant benefit.

UNJUSTIFIED CLAIMS

Heinemann's experiments show that the claims made for the various preparations on the market for the artificial souring of milk, are not justified in the light of our present knowledge on the subject. The question is not whether lactic acid, lactic acid bacteria, buttermilk or sour milk has any therapeutic value, but, admitting that it has, whether sour milk prepared with commercial cultures possesses any therapeutic advantages over milk naturally soured. The evidence at hand fails to give the artificially soured product any such pre-eminence.

LACTOBACILLINE

To consider the claims of manufacturers specifically: Lactobacilline made by the Lactobacilline Company is said to be prepared according to Metchnikoff's directions. While Metchnikoff states that yeasts should be absent, as their presence encourages pathogenic bacteria in the digestive tract, Lactobacilline contains a yeast. This, too, in spite of the statement of the manufacturers, "it contains no yeast germs," and is "pure and absolutely free from all microbes except the remedial lactobacillus isolated by Prof. Metchnikoff. . . ."

FERMENLACTYL

Fermenlactyl, which is put on the market by the Anglo-American Pharmacal Company, is very similar in every respect to Lactobacilline. It, too, contains, besides the Bulgarian bacillus, streptococci and yeasts. In the advertising matter microscopic plates are reproduced purporting to show only the "Bulgarian lactic acid bacilli from which Fermenlactyl is prepared." As a matter of fact, there are in addition to the *B. bulgaricus*, other bacilli, yeast cells and cocci. The claim of the manufacturers of both Lactobacilline and Fermenlactyl that the Bulgarian bacillus is the chief agent, is true only when conditions are such that the preparation of sour milk can take place at a temperature considerably higher than that of any ordinary room. This is a somewhat difficult matter when the beverage is prepared in a private house. When the milk stands at room temperature the common *Streptococcus lacticus* becomes the predominating organism. This would be no disadvantage if it had not been claimed that the chief virtue of milk soured by these preparations is the presence of the *B. bulgaricus*. This organism is said to lodge permanently in the digestive tract and to give rise to the formation of lactic acid *in statu nascendi* and thus inhibit the growth of putrefactive bacteria—a statement that lacks scientific proof.

KEFILAC

Kefilac, made by the Kefilac Company, is not a pure culture of lactic acid bacteria and the sour milk prepared with this ferment does not seem to differ materially from ordinary sour milk. Contrary to Metchnikoff's statement that the alcohol contained in the fermented milk of the Bulgarians is of no value, the Kefilac Company states that "through its large portion of water . . . through its carbon dioxide and through its small per cent. of alcohol, Kefilac greatly influences all the vital processes." Like the two preparations previously mentioned, it is a "remedy" for a long list of diseases including cancer of the stomach, rheumatism, etc.

YOGURT

Yogurt is another preparation of this class made by the Good Health Company, of Battle Creek, Mich. It contains a variety of bacteria and at least one species of yeast so that the composition of the fermented product is very similar to that of the others. The term "meat bacteria" is used in the advertising pamphlet, though what is meant is not altogether clear, since non-sporing bacteria are killed if meat is thoroughly cooked. The Yogurt tablets are called an "antitoxic

ferment"—whatever that may be. The bowels must be kept active, otherwise "Colax"—a "patent medicine" put out by these people—must be used. The number of diseases cured by milk prepared with the Yogurt tablets is enormous. An elaborate list of symptoms is given, some of which may easily be imagined by the anxious layman. In fact, the descriptive matter regarding Yogurt reads very much like a Lydia Pinkham advertisement.

LACTONE

It is claimed for Lactone tablets by their makers, Parke, Davis & Company, that the soured milk made with them possesses certain advantages over ordinary buttermilk. The statement: "The cream is left in the milk, rendering it of far greater nutritive value" is only partly true. If directions are followed, the milk is diluted with one-third of its volume of water before inoculation and the fat, therefore, is naturally reduced to 75 per cent. of the original value in the milk. The fact, too, that the casein, milk sugar and salts of the milk are also reduced to 75 per cent. of the original amount is not stated by the manufacturers. The casein is certainly the most valuable part of the milk and while in ordinary buttermilk only the fat-content is reduced, the other constituents being in nearly the normal proportion, yet in Lactone buttermilk there is more fat but less casein. This is of significance since it is now fairly well established that when cow's milk is used the fat is the cause of infantile digestive troubles rather than the casein.

The advertising matter goes on to state:

"In the ordinary method of making butter the milk is allowed to sour from what accidental bacteria may get into it. Usually the lactic acid germs predominate, but along with these there is always a greater or less number of putrefactive bacteria so that the resulting buttermilk is a mixture of true lactic acid, milk, and putrefactive products." It is difficult to understand why putrefactive bacteria should not be present in the milk when Lactone tablets are used but should be present in the same milk when the tablets are not used. If the purest milk obtainable is used, the putrefactive bacteria which are always present in the milk—even of the best grade—will not develop because the normal lactic acid bacteria antagonize them. It is clear that the same dairyman who, by observing cleanliness in his establishment, furnishes a good quality of sweet milk, will observe the same care in handling cream for making butter, and his buttermilk also will be wholesome and clean.

USE OF COMMERCIAL "STARTERS"

More criticism of a similar nature could be made in regard to the use of commercial preparations for fermenting milk. Where clean—certified—milk can be obtained the use of these various preparations seems unnecessary. Inasmuch as it is not always feasible to obtain certified raw milk, however, boiled or pasteurized milk is to be preferred. It is here that the artificial "starter" is of value. After the first inoculation, the same product can be obtained by inoculating pasteurized or boiled milk with a small amount of the first lot inoculated, with proper precautions of cleanliness. Once started, this process may be continued for a long time without having to renew the "starter." Those who have confidence in the merits of the Bulgarian bacillus of Metchnikoff can procure one of the preparations containing this bacillus and then proceed in the same manner as with the butter starter. It is entirely unnecessary, if not misleading, to use fancy names, as fermentlactyl, lactobacilline, kefilac, lactone or yogurt, this last name suggesting the original Bulgarian fermented milk, containing lactic acid, alcohol, decomposition products of butterfat and of casein, besides a number of micro-organisms. A simple name, applicable to all such preparations alike, as for instance, "buttermilk tablets" or "sour milk tablets," seems more rational.

The scope of Heinemann's paper and the thoroughness with which he treats the subject make his article an important addition to the literature of lactic acid therapy. The medical profession—and the public—is under great obligations to him for his willingness to undertake and carry out these important investigations.

Correspondence

Food Adulterations

To the Editor:—I heartily agree with all that Dr. S. Solis Cohen says in his communication to THE JOURNAL, January 9, about food adulterations and rejoice on account of your strong endorsement. Dr. Cohen says:

"I have not the slightest doubt that sodium benzoate (and especially the commercial article of synthetic sodium benzoate) taken in foods more or less continuously, will derange digestion and set up irritation and degenerative changes in the gastroenteric mucosa. Similarly, I have no doubt that copper salts will cause chronic nephritis and it is possible that pathologic changes in the blood and in the nerves may also be originated in this manner."

This is certainly also true of the preservatives which are permitted by the Department of Agriculture and which have long been in use. These are: Salt, vinegar, saltpeter, spices and smoke. The saltpeter is especially harmful, and as for vinegar and spices, they do not belong in a rational dietary. Salt, as we commonly use it, both as a preservative and on our food generally, is, without doubt, harmful. The creasote and the other empyreumatic products of smoke are not wholesome.

Of course, it would be impossible, being so far ahead of popular knowledge, for the authorities to put their taboo on salt, vinegar, spices and smoke; but they should immediately declare against saltpeter. It is far more injurious than sodium benzoate, which may be taken for a considerable period, say twenty days, in 10-grain doses, three times a day, without perceptible ill effects. But take saltpeter in this way and the result will be violent burning pains, vomiting, purging and other evidences of gastroenteritis, which may end in collapse and death. I believe also that spices are even more injurious than is sodium benzoate. They are irritants, they are constipating and, by stimulating the appetite, they cause over-eating.

For these reasons, catsup, Worcestershire sauce, and all like sauces should not be used in our dietary, and it would be consistent with scientific knowledge for the pure food and health authorities to forbid their use. Now that sodium benzoate is forbidden in catsup, this article is preserved by an acetic acid extract of spices. Strong vinegar is percolated over a mixture of cloves, pepper, cinnamon, allspice, etc., and there results a strong antiseptic which is not less injurious, and probably more injurious to health than sodium salicylate or sodium benzoate.

Formerly, in making catsup, the preserved spices were added direct to the tomato pulp, but in this way they do not exert the same preservative effect as in acetic extract. Cloves, too, contain benzoic acid and it must play a part in the preservation of foods treated with acetic extract of cloves. We all know that people ingest too much proteid, and shorten their lives by so doing. The use of spiced catsup, vinegar and meat sauces, have much to do with causing this over-eating of proteid. The objection is in addition to their irritating and constipating effects.

As for pickles and salads, and mustard and vinegar dressing, they are abominations. They are utterly useless, deleterious and unnecessary. They, too, shorten the duration of life and induce gastric disorders. The facts are, persons who can not eat bland, plain foods with gusto, are abnormal. If catsup, with its acetic acid extract of spices, if Worcestershire sauce and all other like sauces, if pickles and salads and all other gastric stimulants and irritants were left out of our dietary we would be stronger, healthier and happier.

J. N. HURTY, Indianapolis.

Radical Treatment of Hemorrhoids by Excision

To the Editor:—In THE JOURNAL, Dec 12, 1908 (li, 2058), appears an article by Dr. John A. Hawkins, under the title given above. This method was described in the first edition of my book, which was published June 1, 1901. I also described

another method, by which the ligatures, instead of encircling the jaws of the clamp, were put through notches and each tied as an interrupted suture before the clamp was removed. This is nearly the same as the second operation described by Dr. Hawkins.

This continuous-suture method was not entirely original with me, as Dr. Earle of Baltimore described nearly the same operation in *Matthews' Medical Quarterly*, in 1896. Dr. Robert Jones of Liverpool used nearly the same method long before Dr. Earle's paper was written, the only difference being that Jones left, above the clamp, an eighth of an inch of the hemorrhoid, through which he placed the continuous suture, instead of putting it around the jaws of the clamp. Many others had done somewhat similar operations, some simply excising the tumor, sewing the parts together, and including the bleeding vessels in the grasp of the ligature; others ligated the stump and sewed the mucous membrane over it. All these procedures led along the same line, and therefore it did not seem best to me to credit any one of them to one person.

R. D. MASON, M.D., Omaha.

The Evil of Prescribing a Larger Quantity of Medicine Than Is Necessary

To the Editor:—E. M., a woman aged 26, was seized with an attack of diarrhea, for the alleviation of which she took medicine that had been prescribed for a similar contingency two years previously. The diarrhea continuing, she took on December 26 two teaspoonfuls of the medicine, of which there was a small quantity remaining, and two more teaspoonfuls December 27. During the afternoon of December 27 her vision began to be blurred, she grew nervous, her mouth became dry and her heart action rapid. Soon after, her hands and feet grew chilly and numb. By this time she was alarmed and summoned medical aid. I found her pacing the floor and nervously loquacious. The dryness of her mouth and the history, together with the dilated pupils and the uncontrolled heart action, confirmed the diagnosis of atropin poisoning. Treatment along accepted lines was satisfactory in its result.

Often we prescribe medicine in quantities that far exceed the duration of the illness, and, consequently, the patient, loth to throw away good medicine, places that which remains aside for future use. A similar occasion for the use of this medicine arising in the family, the old bottle is uncorked and its contents administered. To all purposes this medicine then becomes a self-prescribed proprietary mixture, purchased, however, with the sanction of the doctor, rather than on the recommendation of the druggist. The harm that might result from such self-drugging with these left-over drugs is worthy of our attention.

CLARENCE D. SELBY, M.D., Toledo, Ohio.

Cannabin Tannate

To the Editor:—We desire to submit our comments on the article on cannabin tannate, which appeared in the columns of *THE JOURNAL*, Nov. 21, 1908.

Cannabin tannate was first manufactured by E. Merck almost thirty years ago at the request of university professors. It is mentioned in the *Ergänzungsbuch zum Arzneibuch des deutschen Reichs* (1906) and the *British Pharmaceutical Codex* (1907). There is, therefore, a demand for it, which it is our business to satisfy. Whence such demand emanates, whether from scientific investigators or from practicing physicians, we have no means of ascertaining. Both classes look to us to supply their needs through regular trade channels.

MERCK & Co., New York.

Harm from Substitution of Silver Nucleinate for Argyrol in Gonorrhea

To the Editor:—*THE JOURNAL*, Dec. 12, 1908, p. 2081, published an abstract of a paper I read before the Southern Medical Association, in which I recommended that argyrol be retained in the urethra by adhesive plaster, to cure quickly cases of beginning gonorrhea. Since writing this paper this plan of treatment was given to a patient in whom so much

urethral irritation was produced that the treatment had to be discontinued. Investigation as to the cause of this irritation disclosed the fact that the druggist had substituted silver nucleinate for argyrol, in my prescription; it was found, furthermore, that many druggists had been making this or similar substitutions for some time.

The prolonged action of medication sealed in the urethral canal as I have suggested makes it absolutely necessary that the medicine be non-irritating. The success of this plan of treatment being dependent on this fact leads me to call attention to the harm that may result from this substitution.

E. G. BALLENGER, M.D., Atlanta, Ga.

"The Climatic Fallacy" in the Treatment of Tuberculosis

To the Editor:—A curious error appears in your Current Medical Literature columns January 9, page 167. The note on my article in the *Illinois Medical Journal* of November on the "Climatic Fallacy" refers to an abstract in a preceding issue of *THE JOURNAL*. On turning to that issue, I find that the abstract there given is not that of my article, but of Dr. Pettit's paper, to which mine was a reply, as I hold views entirely different from those of Dr. Pettit. In that article, I have endeavored to show that Dr. Pettit is not justified in stigmatizing as a "fallacy" the assertion of the value of climate in tuberculosis. Permit me to quote the following words from my article:

"I am a firm believer in climate. Coming west in a far advanced stage of the disease, and with a laryngeal complication which cost me my voice for eight months, and in two years' time making an apparent cure, I feel that I am justified in my climatic faith."

I then proceed to controvert seriatim those statements of Dr. Pettit to which I find it impossible to assent.

L. S. PETERS, Silver City, N. M.

Esperanto as an International Language: A Correction

To the Editor:—In my letter in *THE JOURNAL*, January 16, I find I was in error in stating that Professor Jespersen had retired from the Committee of the Delegation. May I take this opportunity of asking the avalanche of correspondents who have written to me, asking how best to commence the study of the language, to give me a little time in which to reply to their letters. Also I should be glad if any future correspondents would kindly enclose a stamped directed envelope, as the tax of postage is already considerable.

KENNETH W. MILLICAN.

1143 Sheridan Road, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

LEYDEN'S DISEASE—PERIODICAL VOMITING

To the Editor:—Please give diagnosis, prognosis and treatment of Leyden's disease (periodical vomiting).

A. S. HAWKINS, M.D., Monett, Mo.

ANSWER.—The form of periodical vomiting described by von Leyden is characterized by sudden attacks of nausea, gastric pain and excessive vomiting first of food, and later of mucus and bile, coming on at regular intervals of weeks or months, and persisting for from a few hours to several days. Associated with the vomiting, there are frequently pains in the extremities, headache and, if the attacks are frequent or prolonged, there may be extreme prostration and emaciation. In the intervals between attacks, the subjects of this condition complain of no symptoms referable to the stomach or associated organs, and present no signs of lesion of the central nervous system. Examination of the gastric contents during and in the intervals between the attacks usually shows no characteristic abnormality.

In the diagnosis of this disease, lesions of the central nervous system such as encephalitis, meningitis, brain tumor, the intoxications resulting from opium, tobacco, etc., and the many causes of reflex vomiting such as inflammations of the abdominal viscera, the kidney, eye and ear of course must be first excluded. The

attacks show a remarkable similarity to the gastric crises of tabes in which gastric disturbances may antedate by months or even years any other symptom. The regularity both of the intervals between the attacks and of their duration is said to distinguish von Leyden's disease from gastric crises, but in some cases at least it would appear that the possibility of tabes can not be thus excluded.

Migraine also presents certain features, e.g., periodicity, headache, vomiting and sometimes gastralgia, which resemble periodical vomiting, and it may well be that some of the cases regarded as von Leyden's disease are really forms of sick headache. The vomiting seen in hysterical individuals must also be considered, but here other hysterical stigmata will usually assist in the diagnosis. The periodical or cyclical vomiting of children is apparently a condition distinct from that under consideration, dependent in most cases on an auto-intoxication with perhaps fever and signs of acidosis.

The treatment of the condition is largely symptomatic. The mode of life of the patient should be regulated, so as to remove causes of nervous disturbance. The diet should be simple, nutritious and non-irritating. Any apparent predisposing factors, if present, should be removed. Sedatives, such as the bromids, may be of value. During the attacks, iced drinks—albumin water, champagne, etc.—may be given in small amounts. If the vomiting is persistent it may be well to abstain from all alimentation by mouth, and to maintain the fluids of the body by saline enemata. Nutritive enemata may also be given. Gastric lavage will be found of great value. Sinapisms applied to the epigastrium sometimes help to allay the vomiting. In severe cases it may be found necessary to give morphin hypodermically, though this drug should be used only as a last resort, particularly in neurotic individuals.

THE SPECIALIST AND EMERGENCY CALLS

To the Editor:—Is a physician doing special work morally obligated to answer an emergency call? A. S.

ANSWER.—This depends on the nature of the case and the immediate proximity of other available physicians. In one's own specialty one is no less morally bound than a general practitioner to respond to an emergency call. The greater the power to render skilled first aid in emergency to the victims of disaster, the greater the moral obligation to do so. Outside of one's own specialty, however, the moral obligation would seem to decrease in direct proportion to the accessibility of other physicians, practicing either in the specialty involved in the case, or in unrestricted practice. In the absence, however, of any other accessible practitioner—as, for instance, in very isolated places—a gynecologist might properly be called on to do his best to save an injured eye, or an ophthalmic surgeon to lend his aid in a complicated labor case. A physician should ever remember that he is a physician first and essentially, a specialist only secondarily.

KOENIG'S NERVE TONIC

To the Editor:—Can you give me any information regarding the composition of "Koenig's Nerve Tonic," a widely advertised "patent medicine?" H. F. C., Baltimore.

ANSWER.—This nostrum, which is recommended for hysteria, chorea, epilepsy, hypochondria, alcoholism, drug habits, etc., is put on the market by the Koenig Medicine Company, a "patent-medicine" concern of Chicago. It is advertised in the method common to such nostrums and the claims made are characteristically exaggerated. According to one analysis Koenig's Nerve Tonic contains 15 per cent. potassium bromid and a small amount of the bromids of sodium and ammonium, together with a little valerian. The danger of indiscriminate dosing with bromids is well known, but unfortunately the Food and Drugs Act does not require that preparations containing these drugs shall have the contents stated on the label.

The Public Service

the leading kefilac, original-andum of duties of medical officers, alcohol, ny, week ending, H. A., major, ordered, Ark., for observa- besides a treatment. as, arrived at San pleachable to L. L., and McIntyre, H. B., to duty at the from Philippine service, and to duty at the termilk tabulat, San Francisco.

The scope E., 1st Lieut., arrived at San Francisco from Philip- which he tre and ordered to duty at Fort Miles, Cal.

ical profession—major, granted leave of absence for 10 days. addition to the San Francisco, Cal., Feb. 5.

him for his winmajor, and Morse, A. W., and Craig, C. F., capt., court martial to meet at Fort Robinson, Neb., important investi

Rich. E. W., capt., granted leave of absence for four months, with permission to visit the United States.

Persons, E. E., capt., ordered to report for examination for promotion at San Francisco, Cal., and on completion, to proceed to Fort Jay, N. Y., for duty.

Manly, C. J., major, ordered to Fort Bliss, Texas, for duty, on return from Cuba.

Brooks, W. H., capt., ordered to Fort Mackenzie, Wyo., for duty, on return from Cuba.

Whitcomb, C. C., capt., ordered to Fort Wingate, N. M., for duty, on return from Cuba.

Baker, David, major, ordered to report for duty at Fort McPherson, Ga.

Van Dusen, J. W., capt., designated as acting chief surgeon, Department of the Missouri, in addition to present duty at Fort Crook, Neb.

Casaday, G. H., dent.-surg., relieved from duty at the Army General Hospital, San Francisco, Cal., and ordered to Fort Shafter, Hawaii Territory, for duty.

Ryan, E. P. R., dent.-surgeon, ordered from Muskogee, Okla., to Fort Leavenworth, Kans., for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Jan. 23, 1909:

Murphy, J. A., surgeon, ordered to duty at the Naval Hospital, Annapolis, Md.

Snyder, J. J., surgeon, detached from the Marine Recruiting Station, Philadelphia, and ordered to the Naval Station, Port Royal, S. C.

Fauntleroy, A. M., P. A. surgeon, detached from the Naval Academy and ordered to the Marine Recruiting Station, Philadelphia, and to additional duty in attendance on officers not otherwise provided with medical aid.

Mayers, G. M., P. A. surgeon, transferred to the retired list, from Jan. 16, 1909, in accordance with the provisions of section 1453, Revised Statutes.

Campbell, R. A., acting asst.-surgeon, appointment as acting assistant-surgeon, dated Jan. 9, 1909, revoked.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Jan. 20, 1909:

Banks, Charles E., surgeon, directed to proceed to St. Johns River Quarantine Station for special temporary duty.

Brooks, S. D., surgeon, granted 22 days' leave of absence from Jan. 10, 1909, on account of sickness.

Wertebaker, C. P., surgeon, directed to proceed to Savannah and South Atlantic Quarantine Stations, Ga., on special temporary duty.

Anderson, John F., P. A. surgeon, detailed to represent the service at the annual meeting of the Legislative Council of the American Medical Association to be held at Washington, D. C., Jan. 18, 1909.

Anderson, John F., P. A. surgeon, granted 2 days' leave of absence from Jan. 14, 1909, on account of sickness.

Fricks, L. D., P. A. surgeon, granted 7 days' leave of absence from Jan. 9, 1909, under paragraph 210, Service Regulations.

Amesse, J. W., P. A. surgeon, directed to proceed to Nuevitas, Cuba, on special temporary duty, Jan. 13, 1909.

Hurley, J. R., asst.-surgeon, relieved from duty on Revenue Cutter Bear and directed to report to the medical officer in command San Francisco Quarantine, Angel Island, Cal., for duty and assignment to quarters.

Hurley, J. R., asst.-surgeon, granted 2 days' leave of absence, Dec. 25, 1908, and Jan. 1, 1909.

BOARD CONVENED

Board of medical officers convened to meet at the office of the Marine-Hospital in Norfolk, Va., Jan. 18, 1909, for the purpose of conducting a physical examination of an officer of the U. S. Revenue Cutter Service. Detail for the board: Surgeon C. P. Wertebaker, chairman; Acting Assistant Surgeon R. W. Brown, recorder; Jan. 15, 1909.

CASUALTY

Smith, Alexander C., surgeon, died in Pittsburg, Pa., Jan. 15, 1909.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Jan. 22, 1909:

SMALLPOX—UNITED STATES

California: Los Angeles, Dec. 26-Jan. 2, 2 cases; San Francisco, 8 cases.

Illinois: Lafayette, Jan. 4-11, 7 cases.

Kansas: Topeka, Dec. 26-Jan. 2, 5 cases.

Kentucky: Covington, Jan. 2-9, 1 case.

Maine: Van Buren, Jan. 2-9, 4 cases.

Massachusetts: Taunton, Jan. 2-9, 1 case.

Minnesota: St. Paul, Nov. 1-30, 38 cases.

Missouri: St. Joseph, Dec. 12-19, 1 case; St. Louis, Jan. 2-9, 1 case; Springfield, Dec. 1-31, 1 case.

North Carolina: In five counties, Nov. 1-30, 23 cases.

Ohio: Cincinnati, Jan. 1-8, 13 cases; Tiffin, Jan. 2-9, 1 case.

Tennessee: Knoxville, Jan. 2-9, 2 cases.

Texas: San Augustine County, Jan. 9, present.

Washington: Spokane, Dec. 26-Jan. 2, 1 case, 1 death.

Wisconsin: LaCrosse, Jan. 2-9, 6 cases; Milwaukee, Dec. 26-Jan. 9, 15 cases.

SMALLPOX—FOREIGN

Arabia: Aden, Dec. 7-21, 17 deaths.

Brazil: Rio de Janeiro, Nov. 28-Dec. 13, 298 cases, 169 deaths; Santos, Nov. 22-Dec. 6, 4 deaths.

Canada: Halifax, Dec. 26-Jan. 2, 3 cases; Montreal, 1 case; Winnipeg, 2 cases.
Chile: Talcahuano, vicinity of, Nov. 20, present.
China: Shanghai, Nov. 21-28, present.
Ceylon: Colombo, Nov. 7-22, 37 cases, 9 deaths.
Egypt: Alexandria, Nov. 27-Dec. 2, 1 death; Cairo, Dec. 9-16, 9 cases, 6 deaths.
Great Britain: Bristol, Dec. 12-19, 1 case.
Guatemala: Dec. 21, 600 cases, 200 deaths.
India: Calcutta, Nov. 23-Dec. 5, 14 deaths; 1 case.
Indo China: 1 case.
Italy: C. ses, 10 deaths; Genoa, Dec. 8-15, 1 case; Naples, Dec. 20-27, 24 cases, 10 deaths.
Java: Batavia, Nov. 1-Dec. 6, 7 cases, 1 death.
Mexico: Mexico City, Nov. 7-Dec. 5, 22 deaths.
Persia: Tabriz, Oct. 9-Dec. 9, present.
Peru: Lima, Dec. 10, 4 cases.
Porto Rico: Mayaguez, Dec. 19-26, 1 case.
Portugal: Lisbon, Dec. 12-Jan. 2, 7 cases.
Russia: Moscow, Dec. 5-19, 38 cases, 16 deaths; Riga, Dec. 12-19, 1 case; St. Petersburg, Dec. 5-12, 7 cases, 2 deaths.
Serbia: Belgrade, Dec. 5-12, 2 deaths.
Turkey: Constantinople, Dec. 13-20, 6 deaths.

YELLOW FEVER

Brazil: Para, Dec. 12-26, 5 cases, 5 deaths.
Dutch Guiana: Paramaribo, Dec. 1-31, 18 cases, 4 deaths.
Ecuador: Guayaquil, Nov. 28-Dec. 12, 4 deaths.
Mexico: Mexicanu, vicinity of, Dec. 26-Jan. 2, 1 case, 1 death; Merida, 2 cases; Soztil, plantation, 1 case; Vera Cruz, 2 cases, 1 death.

CHOLERA—INSULAR

Philippine Islands: Manila, Nov. 28-Dec. 5, 7 cases, 5 deaths; Provinces, 360 cases, 227 deaths.

CHOLERA—FOREIGN

India: Bombay, Dec. 8-15, 16 deaths; Calcutta, Nov. 28-Dec. 5, 9 deaths; Madras, Dec. 5-11, 5 deaths; Rangoon, March 28-Dec. 5, 1 case.
Persia: Tabriz, Dec. 9, present.
Russia: General, Nov. 28-Dec. 19, 778 cases, 352 deaths.
Siam: Bangkok, Nov. 1-30, present.

PLAGUE

Brazil: Rio de Janeiro, Nov. 28-Dec. 13, 13 cases, 6 deaths.
Ecuador: Guayaquil, Nov. 28-Dec. 12, 3 deaths; Mlalgro, Dec. 16-20, 6 cases, 2 deaths.
Egypt: General, Dec. 18-30, 31 cases, 4 deaths.
India: General, Nov. 28-Dec. 5, 2,196 cases, 1,626 deaths; Bombay, Dec. 8-15, 8 deaths; Calcutta, Nov. 28-Dec. 5, 6 deaths; Rangoon, Nov. 28-Dec. 5, 3 deaths.
Indo-China: Saigon, Nov. 21-28, 1 case, 1 death.
Peru: General, Nov. 20-Dec. 3, 55 cases, 23 deaths; Lima, 7 cases.
Turkey: Bagdad, Nov. 28-Dec. 12, 6 cases, 1 death.
Siam: Bangkok, Nov. 1-30, present.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

MEDICAL LAWS IN STATE LEGISLATURES

The legislatures in most states meet biennially, the majority during the first week in January of the odd year. Legislatures are now in session in the following states: Arizona, Arkansas, California, Colorado, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, Nevada, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin and Wyoming. In addition, the Florida legislature will meet in April and the Georgia legislature in June. In many of these states, the increasing interest in public health and its protection and regulation by the state is marked; in some states the members of the legislature are showing more interest than in any previous year. We hope to keep our readers informed regarding bills introduced in the various state legislatures on matters affecting public health. Some of the more important bills will be abstracted. So far, the following measures have been reported to us:

INDIANA

Three bills of interest to the medical profession have been introduced. (1) A bill for the prevention of the pollution of streams; (2) a bill providing for the sanitary features of school houses hereafter built in Indiana as well as for medical inspection of schools; (3) a housing bill. These bills have been carefully prepared in the light of experience

gained by the state board of health for a number of years past and have been cordially received by the legislature.

KANSAS

House Bill 1 is a vital statistics bill introduced by Mr. Allen of Wyandotte County. Another bill which will be introduced shortly provides for the appropriation of \$10,000 for the use of the state board of health in inaugurating a campaign throughout the state against tuberculosis, the essential feature of which will be the assemblage of an exhibit under the care and direction of a competent lecturer. These two bills are in the interest of the public health.

SOUTH DAKOTA

House Bill 2 is an act to prevent the manufacture and sale of adulterated or misbranded drugs. The U. S. Pharmacopeia and National Formulary are recognized as standards both as to nomenclature, strength, quality and purity, with the provision that a "plain statement on the package of the standard of strength," etc., will exempt the manufacturer from complying with the Pharmacopeia or National Formulary. The state board of pharmacy is authorized to enforce the act. The rules and regulations contained in the national Food and Drugs Act are to be applied so far as possible.

House Bill 12 creates a state hospital and farm for inebriates to which persons addicted to the use of alcoholic liquors, morphin, cocain or other narcotic drugs can be committed either on their own application or on that of their friends. Furnishing any person so committed with any narcotics or intoxicating liquors is made a felony. The regulation and management of the hospital is put in the hands of the state board of charities and correction.

House bill 36 is also a bill for the regulation of drugs which differs from House Bill 2 in the following particulars: The definition of adulteration in House Bill 2 includes any deviation from the standard of the U. S. Pharmacopeia or National Formulary, and also specifies that a preparation is adulterated if it falls below the professed standard or quality under which it is sold. House Bill 36 makes no mention of any standard but defines adulteration as consisting of, (1) the addition of any substance which will reduce, lower or injuriously affect the quality, strength or purity of the preparation; (2) if the strength, quality or purity of the preparation fall below the professed standard under which it is sold; (3) if the contents of the package should be removed in whole or in part and other substances placed inside of the package; (4) if the preparation be an imitation of or is offered for sale under the name of another article. The provisions regarding misbranding are more explicit in House Bill 36 than in House Bill 2. The principal difference, however, is that House Bill 2 places enforcement in the hands of the state board of pharmacy, while House Bill 36 places it in the hands of the dairy and food commissioners. House Bill 36 also creates a referee board consisting of the president of the state board of health, the president of the state board of pharmacy and the state chemist.

House Bill 74 is similar to House Bill 12, providing for the examination of persons addicted to the excessive use of liquors, morphin, cocain and other drugs. House Bill 116 establishes a sanitarium for tuberculosis at Custer, S. D., and places the management in the hands of the state board of charities.

TEXAS

No copies of bills from Texas have been received, but a newspaper clipping states that a bill establishing a state board of health and one establishing a tuberculosis sanitarium will be introduced. The state board of health bill is a combination of the bill drawn by the state health department and that drawn by the State Medical Association of Texas, and provides for seven members of the state board of health with the state health officer as the executive officer of the board. The bill for a tuberculosis sanitarium calls for an appropriation of \$150,000 or more for the establishment of a tuberculosis sanitarium in southwest Texas, the institution to be under state control.

Vermont Adopts an Optometry Law

The Vermont legislature has passed an optometry bill, which we regret to say, has been signed by the governor, and has become a law, as we announced editorially in THE JOURNAL, January 23, page 303.

In Section 1 optometry is defined as "the employment of any means, other than the use of drugs, for the treatment of the powers of vision and the adaptation of lenses for the aid thereof." A state board of examiners is established of three persons engaged exclusively in the practice of optometry, who have been residents of the state and actively engaged in the practice of optometry for at least five years. The usual provisions for the organization and perpetuation of the board follow. Persons desiring to practice "optometry" must be over 21 years of age, with a preliminary education equivalent to at least two years in a high school and must be graduates of a "recognized standard school of optometry maintaining a two years' course of study of at least six months of each year." Persons who have been continuously engaged in the practice of optometry for more than two years prior to the passage of the act are exempt from examination. Duly licensed physicians are exempt, also persons who "neither practice nor profess to practice optometry, but who sell spectacles, eye glasses or lenses on prescriptions from physicians or registered optometrists or as merchandise from permanently located places of business."

Vermont is the eleventh state to adopt a law recognizing and licensing "optometry." The law, as indicated above, attempts to distinguish between "optometrists" and those who simply sell spectacles, eyeglasses or lenses. The law also specifically distinguishes between physicians and optometrists. The definition of optometry given in the first section in one is no less treatment of the powers of vision and the adaptation to an emergency for the aid thereof, it would be difficult to see aid in emergency to, could be put on the work of the optometrist. Authority to measure the power of vision and obligation would be cause of the limitation of the power of other physicians. In the case of normal presbyopia, a glaucoma, or of any other eye disease, he is also authorized to prescribe drugs. The question whether he is to do his best to save an injured eye followed by the use of surgery to lend his aid in a complicated case is one which should ever remember that he is a physician. In this law, there has been a specialist only secondarily. states, a distinct

nesota State legislature on the subject of sanitary legislation and the conservation of the public health.

Reports from members of the local profession are unanimous in stating that his visit has been productive of great good to the people of the state. Dr. H. M. Bracken, executive officer of the State Board of Health, writes: "His visit will be a great help both in dealing with civic matters and with legislative problems. As to public health work, Dr. McCormack's visit has been of great assistance. I only wish he might have been in the state in the early fall when we could have secured more attention from the present legislators."

Dr. F. F. Wesbrook of Minneapolis, writes: "We have most thoroughly enjoyed Dr. McCormack's visit and our only regret was that he could not stay longer."

Dr. Arthur Sweeney says: "It was a great pleasure to have Dr. McCormack with us and he has produced an immense amount of benefit. The Ramsey County Medical Society gave him a warm welcome and he stimulated it to a new sense of its responsibilities. His public meeting was a splendid affair, the hall being packed to the doors and not a soul left until he had said his last word. I have heard many comments of the most favorable nature from those who heard him. His greatest work was done in the legislature. He talked to the senate and the house, the governor being present, for over an hour. The array of practical medical statistics he gave them was most conclusive, and they are prepared to go the limit on milk inspection, school inspection, and the regulation of quackery. I am more encouraged now than ever before over the prospects in our state, and I believe that for years to come, we will reap the benefit of Dr. McCormack's visit. He is a true missionary, and is doing, in my opinion, the most valuable work that is being done by the Association. I write this from the fulness of my realization of our needs."

Germania Life Insurance Company Restores Five Dollar Rate

The Germania Life Insurance Company of New York has issued a circular to its examiners announcing that on and after Jan. 1, 1909, the company will pay five dollars for each complete examination and report, with two dollars additional for a microscopic examination of the urine.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

GUNSHOT WOUNDS OF INTESTINES

Pathology and complications. Diagnosis. Indications and contraindications to operative treatment. Technique; intestinal suture, enterectomy, drainage.

Monthly Meeting

Preparation of the Patient for an Abdominal Operation.
Diagnosis and Treatment of Acute Intestinal Obstruction.
Details of the Operative Treatment of Gunshot Wounds of the Stomach and Intestines.

Marriages

HERBERT L. THOMPSON, M.D., to Miss Nymah McLenchan of Chicago, January 20.

LOUIS L. HIRSCH, M.D., Providence, R. I., to Miss Esther Harris of Chicago, January 19.

ABNER E. GORE, M.D., Marshall, Mo., to Miss Adele Fleming of Columbia, Mo., December 30.

E. LEE GOWDY, M.D., Campbellsville, Ky., to Miss Flora Finucan of Lebanon, Ky., January 12.

GUY JOHNSON, M.D., Traverse City, Mich., to Miss Madge Lesure of Menominee, Wis., recently.

ALBERT CHARLES PURCELL, M.D., Streator, Ill., to Miss Mayme Wolfe of Eagle, Ill., January 5.

BENJAMIN C. SHULER, M.D., Shenandoah, Va., to Miss Frances Gore, at Stanley, Va., January 12.

CHARLES SAMUEL BRYAN, M.D., to Miss Helen Marie Friedrich, both of Vincennes, Ind., January 14.

HARRIE SANBORN GARLAND, M.D., Sapulpa, Okla., to Miss Rose Edith Kinsman of Kansas City, January 14.

Deaths

Henry Reed Stiles, M.D. New York University, New York City, 1855; one of the founders of the Long Island Historical Society; a health inspector of New York City for three years; later medical superintendent of the State Homeopathic Hospital for the Insane, Middletown; professor of nervous and mental diseases in the New York Woman's Medical College from 1882 to 1885; for a time editor of the *Toledo Blade*; a historian and genealogist; died at his home in Hillview, N. Y., January 8, from cerebral hemorrhage, aged 76.

James Fenton Bryant, M.D. New York University, New York City, 1867; a member of the Medical Society of Virginia, Seaboard and Southside Virginia medical societies, and associations of surgeons of the Southern Railway and Seaboard Air Line; a Confederate veteran; a member of the board of visitors of the Medical College of Virginia, Richmond; formerly superintendent of schools of Southampton County; died at his home at Franklin, Va., January 16, aged 67.

Alexander Conde Smith, M.D. Northwestern University Medical School, Chicago, 1887; a member of the American Medical Association; who entered the Public Health and Marine-Hospital Service in 1889; was made passed assistant surgeon in 1893, and promoted to surgeon in 1904; died in Mercy Hospital, Pittsburgh, January 15, as the result of injuries received six days before by being thrown from a horse, aged 48.

Louis C. Bruning, M.D. University of Louisville, 1895; of Miles City, Mont.; a member of the American Medical Association and the Tri-County Medical Association of Eastern Montana; assistant surgeon of volunteers with Philippine service in 1898 and 1899; captain and assistant surgeon First Infantry, Montana Volunteer Militia; a member of the State Board of Health; died in Chicago, January 12, aged 41.

Charles Carroll Shinnick, M.D. Hahnemann Medical College, Chicago, 1878; of Oakland, Cal.; formerly a member of the board of health of Oakland; surgeon to the South Dakota State Soldiers' Home, and member and twice secretary of the State Board of Medical Examiners of Utah; a veteran of the Civil War; died in Santa Cruz, Cal., January 12, from chronic nephritis, aged 60.

Roscoe Ellsworth Brown, M.D. Medical School of Maine, Brunswick, 1876; a member of the American Medical Association and Gynecological Society of Boston; visiting surgeon to the Whidden Memorial Hospital; consulting surgeon to the Soldiers' Home, Chelsea, and formerly city physician of Everett, Mass.; died at his home in Everett, January 7, aged 57.

Edwin R. Chadbourne, M.D. College of Physicians and Surgeons, New York City, 1879; a member of the American Medical Association, and New York Academy of Medicine; a specialist in diseases of children; formerly of New York City; died suddenly at his home in Pasadena, Cal., January 10, from emphysema, complicating an acute bronchitis, aged 53.

Henry L. Goodman, M.D. Missouri Medical College, St. Louis, 1893; a member of the American Medical Association; for ten years medical inspector in the Department of Health of New York City; died at his home in New York City, January 11, from the effects of carbolic acid said to have been self-administered while mentally irresponsible, aged 36.

Stewart V. Groesbeck (license, S. D., 1887), a member of the American Medical Association; a veteran of the Civil War; formerly postmaster of Marshall, Minn.; register of deeds and coroner of Lyon County, Minn.; surgeon at the National Home for Disabled Volunteer Soldiers, Hot Springs, S. D.; died in that institution, December 31, aged 68.

Joseph Harris Stonestreet, M.D. College of Physicians and Surgeons, Baltimore, 1885; a member of the Medical and Chirurgical Faculty of Maryland; school commissioner of Montgomery county; and local surgeon for the Baltimore and Ohio Railroad; died at his home in Barnesville, January 13, from pneumonia, aged 48.

Henry D. Sill, M.D. College of Physicians and Surgeons, New York City, 1892; a member of the American Medical Association, and president of the Medical Society of Otsego County; physician to Thanksgiving Hospital, Cooperstown, N. Y.; died at his home in Cooperstown, January 11, from typhoid fever, aged 42.

Walter J. Russell, M.D. Jefferson Medical College, Philadelphia, 1889; a member of the American Medical Association, and once president of the McKean County (Pa.) Medical Society; formerly visiting physician to Bradford Hospital; died at the State Hospital for the Insane, Warren, January 8, aged 48.

James Wallace, M.D. Rush Medical College, 1879; of Newport, Ind.; a member of the Indiana State Medical Association; a member of the local board of U. S. Pension Examining Surgeons; died at the home of his sister in Cayuga, Ind., January 18, from cancer of the prostate and intestines, aged 59.

Benjamin Franklin Betts, M.D. Hahnemann Medical College, Philadelphia, 1868; professor of gynecology in his alma mater from 1876 to 1895; consulting gynecologist to Hahnemann Hospital, Philadelphia; died suddenly, from heart disease, at his home, January 16, aged 63.

Simon P. Deahofe, M.D. Medical College of Ohio, Cincinnati, 1882; a member of the American Medical Association; died at his home in Mineral Point, Wis., January 7, from the effects of a gunshot wound of the skull, self-inflicted, while temporarily insane, aged 56.

William B. Anderson, M.D. Kentucky School of Medicine, Louisville, 1861; University of Louisville, 1885; major and surgeon in the Confederate service during the Civil War; died at his home in Vincennes, Ind., January 4, from acute cystitis, aged 69.

James Richard Johnson, M.D. University of Iowa, Keokuk, 1869; a veteran of the Civil War; died suddenly at his home near Avenstoke, Ky., January 15, from heart disease, complicated with pneumonia and cancer of the liver, aged 64.

Henry Clay Allen, M.D. Cleveland Homeopathic Medical College, 1861; Queen's University, Kingston, Ont., 1872; dean and professor of materia medica in Hering Medical College, Chicago; for several years editor of the *Medical Advance*; died at his home in Chicago, January 22, from heart disease, aged 72.

Ingeborg Tausstrom, M.D. University of Stockholm, Sweden, 1886; Harvard Evening Medical College, Chicago, 1896; a member of the American Medical Association; died at her home in Finlayson, Minn., June 13, aged 55.

James Miller Ross, M.D. Eclectic Medical College of Philadelphia, 1857; coroner of Clearfield County, Pa.; and the oldest practitioner of DuBois; died at the home of his son-in-law in Brockwayville, January 4, aged 79.

G. H. Gilreath, M.D. Atlanta (Ga.) Medical College, 1893; died December 24, at his home near Farmington, Ga., aged about 60.

Frank Clay Maxon, M.D. Eclectic Medical College of the City of New York, 1878; some time coroner of Columbia county, N. Y.; trustee and health officer of Chatham; died at his home January 6, aged 68.

A. M. D. Hendrickson, M.D. University of Tennessee, Nashville, 1879, 1881; University of Louisville, 1884; in 1902 a member of the Indiana State Legislature; died at his home in Magnet, January 7, aged 54.

Lucy Harkey Adams, M.D. Northwestern Ohio Medical College, Toledo, 1890; Grant University, Chattanooga, Tenn., 1901; died at her home in Beechview, Pittsburg, January 11, from pneumonia, aged 51.

Langdon Cheves Nesbitt, M.D. Medical College of the State of South Carolina, Charleston, 1850; died at his home in Woodruff, S. C., October 10, from malignant disease of the kidney, aged 82.

William Aitcheson, M.D. University of Michigan, Ann Arbor, 1873; a member of the American Medical Association; died at his home in Ortonville, Mich., January 10, from pneumonia, aged 62.

George Green, M.D. Rush Medical College, Chicago, 1870; of Aurora, Ill.; died at the home of his sister in Waltham, Mass., January 9, from typhoid fever complicating pneumonia, aged 74.

Clarence L. Freidline, M.D. Eclectic Medical Institute, Cincinnati, 1903; coroner of Somerset County, Pa.; died at his home in Stoyestown, from disease of the stomach, January 11, aged 30.

John Lincoln Gardner, M.D. Rush Medical College, Chicago, 1883; a member of the American Medical Association; died at his home in Rochelle, Ill., January 15, from pneumonia, aged 53.

Andrew Henry Getty, M.D. New York University, New York City, 1897; a member of the Medical Society of the State of New York; died at his home in Athens, January 14, aged 59.

Harold Carl Geyer, M.D. College of Physicians and Surgeons, New York City, 1901; of Cold Springs, N. Y.; died in Frankfurt, Germany, January 9, from diabetes, aged 34.

Mary Winegar Moody, M.D. University of California, San Francisco, 1882; a member of the Medical Society of the State of California; died recently in San Francisco.

D. W. Callahan (license, Ohio, 1896); a practitioner of Gustavus, Ohio, for more than twenty years; died suddenly at his home, January 13, from cerebral hemorrhage.

Cadwallader Hicks, M.D. University of Louisville, 1872; a member of the American Medical Association; died at his home in Mount Vernon, Ind., January 12, aged 61.

H. Clay Davis, M.D. University of Louisville, 1858; a member of the Kentucky State Medical Association; died at his home in Braxton, January 11, from pneumonia.

Harvey C. Heald, M.D. College of Physicians and Surgeons, Chicago, 1899; of Millard, Neb.; died in a hospital in Omaha, January 10, from disease of the liver, aged 35.

Charles Wilson Bresenham, M.D. Boston University, 1880; of Millers Falls, Mass.; died suddenly in Athol, Mass., January 9, from acute alcohol poisoning.

Seymour Chauncey Wilcox, M.D. Geneva (N. Y.) Medical College, 1841; died at his home in New Albany, Ind., January 12, from senile debility, aged 90.

Joseph A. Muenich, M.D. Rush Medical College, Chicago, 1879; died at his home in Jefferson, Wis., January 7, from cerebral hemorrhage, aged 64.

Johannes R. Bielenburg, M.D. (license, Iowa, 1886); died at his home in Keystone, Iowa, January 7, from carcinoma of the stomach, aged 75.

Sorin S. Ewell, M.D. Medico-Chirurgical College of Philadelphia, 1881; died at his home in Vienna, Md., January 8, from pneumonia, aged 82.

Frank M. Smith, M.D. University of Louisville, 1876; died at his home in Cloverport, Ky., December 25, after a lingering illness, aged 63.

John A. Gordon, M.D. Memphis (Tenn.) Hospital Medical College, 1887; died at his home in Healdton, Okla., January 2, aged 70.

John Easton, M.D. McGill University, Montreal, 1852; died at his home in Brockville, Ont., January 11, aged 87.

Kensley Johns, M.D. Medical College of Virginia, Richmond, 1847; died at his home in Norfolk, January 3, aged 85.

Book Notices

SYNTHÈSE DE LA CONSTITUTION DES ALBUMINOÏDES. (Les Actualités Chimiques et Biologiques. No. 10) Par Emm. Pozzi-Escot. Paper. Pp. 110. Price, 1.50 francs. Paris: Jules Roussset, 1909.

This pamphlet gives a good account of the character and reactions of the proteins, of the products of their decomposition and the conception of their constitution obtained by this method. The various attempts at synthesis are described and the results achieved are detailed. The hope is expressed that eventually the synthesis of proteins as they exist in the organism will become possible and that in the gradual progress we shall arrive at a thorough knowledge, not only of the constitution and properties of the proteins themselves, but also of those intermediate products of their decomposition which constitute the toxins and antitoxins that play so large a part in the pathogenesis and therapy of disease.

A MANUAL OF DISEASES OF CHILDREN. By John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second Edition. Thoroughly Revised. Pp. 423, with illustrations. Flexible Leather. Price, \$2.00. Philadelphia: W. B. Saunders Co., 1908.

This book has been revised and brought up to date. Important additions are the chapters on medical inspection of school children, danger of contagion after infectious diseases, and return of children to school after exposure to contagion. The list of bibliographic references is fairly complete and unlike most bibliographies the references are accessible, being confined, practically, to articles in the English language.

DISEASES OF THE EAR. By Hunter Tod, M.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.), Aural Surgeon to the London Hospital. Cloth. Pp. 317, with illustrations. Price, \$3.00. New York: Oxford University Press, 1907.

This work is practical and concise, and should be of value to the general practitioner who is frequently the first to be consulted in diseases of the ear, especially in small towns. The chapter on aural complications of acute infectious and other diseases is good, but too short. The book is not intended for the specialist.

NEUROLOGIC AND MENTAL DIAGNOSIS, A MANUAL OF METHODS. By L. Clark Pierce, M.D., Senior Attending Physician, Hospital for Nervous Diseases, New York, and A. Ross Diefendorf, M.D., Lecturer in Psychiatry in Yale University. Cloth. Pp. 188, with illustrations. Price, \$1.25. New York: Macmillan Company, 1908.

The object of this volume, as stated in the introductory note, is "to aid the student and general practitioner to make thorough and systematic examinations in nervous and mental diseases." It consists of two sections, one on neurologic diagnosis by Dr. Clark and the other on methods of examination in cases of mental disorder by Dr. Diefendorf, to which is appended a glossary of terms used in psychiatry. In the first section Dr. Clark gives a very fair summary of methods, covering most of the needs of the general practitioner, which is made more useful by the numerous illustrations. Instructive examples of methods of recording case histories are given and, while the section is not exhaustive by any means and would not completely fortify the practitioner against a rigid examination by a clever and well-armed lawyer in a medicolegal case, as in the noted Thaw trial, it will be a fairly useful guide in diagnosis. Some of the more or less important symptoms which are not specially mentioned will be called to the attention of the observant student by the methods of examination here suggested. The second part, that on mental diagnosis, consists of a chapter on history-taking and mental and neurological examination, followed by one containing a series of clinical cases intended "to demonstrate these methods and give an insight into the more common forms of insanity." This first chapter is comparatively brief and to the point. The plan of the second is to give typical cases, according to the now popular classification of Kraepelin. The trouble will be in the atypical ones, which are sufficiently numerous to be considered. The glossary of psychiatric terms is decidedly incomplete, and some of the definitions could be improved; the ordinary conception of alcoholic pseudoparesis, for example, is not, we believe, that of hallucinatory dementia in which the symptoms of Korsakoff's disease exist; and a

number of such frequently used terms as "psychasthenia," "eyelothymia," etc., are not included. Elsewhere in the book there are one or two slips of the proof-reader which may be mentioned, such as the use of the contraction for minims instead of millimeters in esthesiometric measurements and employment of the term "astereognostic sense," which seems hardly correct. These, however, are minor defects that are not misleading or important. The book as a whole will be found useful by those for whom it is intended.

MEANS FOR THE PROLONGATION OF LIFE. Third and Enlarged Edition of a Lecture Delivered Before the Royal College of Physicians on Dec. 3, 1903. By Sir Hermann Weber, M.D., F.R.C.P., Consulting Physician to the Mount Vernon Hospital for Consumption. Cloth. Pp. 214. Price, \$1.00. London: John Bale Sons & Danielsson, Ltd. 1908

There is nowhere to be found a more rational and succinct account of the hygiene of mature life than is contained in the 200 pages of Sir Hermann Weber's book, which with the present issue reaches its third edition. Weber refrains from any detailed description of the underlying pathology of senescence and avoids discussion of the abstruse problems surrounding that subject, which have lately engaged the attention of Metchnikoff, Minot and others. The book aims to accept the facts of the situation without controversy, and on a practical basis to lay down the rules of hygiene best adapted to preserve health and vigor in old age and postpone the advent of senility. There is a directness and simplicity about the manner in which the subject is developed that makes this little book an interesting and impressive one. The language is simple, dignified and untechnical. The book can be recommended to intelligent lay readers as well as to the medical profession.

ARTERIOSCLEROSIS By Louis M. Warfield, A.B., M.D., Instructor in Medicine, Washington University. Introduction by W. S. Thayer, M.D., Professor of Medicine, Johns Hopkins University. Cloth. Pp. 100. Price, \$2.00. St. Louis: G. Y. Mosby Med.

This monograph on a most important subject contains nothing new and is not a satisfactory compilation of what is known. The style is discursive and sometimes colloquial. The first two chapters are devoted to anatomy and physiology, the latter subject occupying only eight pages. The chapter on pathology is one of the best in the book. We had hoped for a full consideration of the symptomatology and diagnosis of arteriosclerosis in the various organs and parts of the body, but the subject is not dealt with as systematically or as fully as is desirable. In the pages devoted to symptoms Warfield says: "The epileptiform and apoplectiform attacks which occur in Stokes Adams disease are due to the sclerosis of the cerebral vessels." This is a generalization, the truth of which, we believe, has not been demonstrated. The last pages summarize what has been said at greater length in earlier ones.

AN INQUIRY ON ENTERIC FEVER IN INDIA. Carried Out at the Central Research Institute, Kasauli. Under the Direction of Lieutenant Colonel D. Semple, M.D., Director of the Institute, and Captain F. D. W. Greig, M.D. No. 32 of Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. Cardboard. Pp. 108. Price, 1s. 2d. Calcutta: Superintendent Government Printing, 1908

In this memoir great stress is laid on the importance of the typhoid-carrier in spreading typhoid fever in India. As the result of numerous experiments and observations the conclusion is reached that the conditions encountered outside a human host are not favorable to the prolonged existence of the typhoid bacillus. It will be noted that this conclusion is in harmony with many recent experiments on the vitality of the typhoid bacillus in water and soil. The writers of this memoir state without reservation that the problem of the prevention of typhoid fever among the British troops in India is the detection and isolation of the individuals harboring typhoid bacilli.

A LABORATORY GUIDE FOR HISTOLOGY. By Irving Hardesty, A.B., Ph.D., Associate Professor of Anatomy in the University of California; with a chapter on laboratory drawing by Adelbert Watts Lee, M.D., Assistant in Anatomy in the University of California. Cloth. Pp. 193, with 30 illustrations, 2 in color. Price, \$1.50. Philadelphia: P. Blakiston's Son & Co., 1908

This volume is well prepared, and the sequence of subjects is good, so that no teacher would err in adopting the book for

his use. The chapter on laboratory drawing is not only unique, but valuable, inasmuch as the importance of drawing specimens can not be overestimated as an aid in study. As is so often the case, too much time is given to the study of the central nervous system in proportion to that devoted to the other tissues and organs.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: Topeka, Feb. 9. Sec. Dr. R. A. Light, Chanute.
NEBRASKA: State Capitol, Lincoln, Feb. 3-4. Sec. Dr. E. J. C. Sward, Oakland.
NEW YORK: Albany, Feb. 25. Chief of Examinations Division, Dr. Charles F. Wheelock.
WYOMING: Cheyenne, Feb. 10-12. Sec., Dr. S. B. Miller, Laramie.

The Ohio Association of Medical Teachers

The fourth annual meeting of the Ohio Association of Medical Teachers was held in Columbus, December 28. The following papers were read: "What Should Be Taught in Anatomy," W. E. Lewis, Miami Medical College, Cincinnati; "A Graded Anatomy Course," Chas. W. Moots, Toledo Medical College; "Methods in Teaching Internal Medicine," C. F. Hoover, Medical Department Western Reserve University, Cleveland; "What Should Be Taught the Medical Student in Chemistry," J. U. Lloyd, Eclectic Medical College, Cincinnati; "The Medical Flavor in Medical Chemistry," Park L. Myers, Toledo Medical College; "Pedagogic Methods in Medical Colleges," W. J. Means, Starling-Ohio Medical College, Columbus. "Recent Changes in State Medical Law and a Report of the Work of the State Medical Board for the Past Year," E. J. Wilson, State Medical Board; "The University Idea," C. E. Walton, Fulte Medical College, Cincinnati; "The Teaching of Pediatrics," S. W. Kelly, Cleveland College of Physicians and Surgeons; "The Proposed Requirement of One Year of Literary College Work as a Prerequisite to Entrance to a Medical College," E. J. Wilson, State Medical Board.

There was practical unanimity as to the advisability of the colleges in Ohio raising their entrance requirement to include one year of literary college work in biology, chemistry and physics. The association passed a resolution commending the State Medical Board for conducting practical examinations in biology, bacteriology and embryology and recommended that clinical medicine be added to the list of branches in which such examinations are conducted.

The following officers were elected for the ensuing year: President, Dr. James U. Barnhill, Columbus; vice presidents, Drs. W. E. Lewis, Cincinnati, and J. A. Thompson, Cincinnati; secretary, Dr. E. I. McKesson, Toledo; treasurer, Dr. Charles W. McGavran, Columbus. The executive committee consists of the above officers and the following: C. E. Walton, Kenyon Dunham and J. K. Scudder, Cincinnati, W. S. Kelly and F. C. Waite, Cleveland.

Louisiana Homeopathic November Report

Dr. C. R. Mayer, president of the State Board of Medical Examiners (Homeopathic), reports the written examination held at New Orleans, Nov. 2, 1908. The number of subjects examined in was 10; total number of questions asked, 40; percentage required to pass, 75. Only one candidate, a graduate of the University of Michigan, 1908, appeared for examination and he passed with an average of 92 per cent.

District of Columbia April, July and October Reports

Dr. George C. Ober, secretary of the Board of Medical Supervisors, reports the written examinations held at Washington, April, July and October, 1908. The number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75.

At the examination held in April, the total number of candidates examined was 17, of whom 10 passed and 7 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington Univ.....	(1905) 75.9; (1907) 78.8, 79.7, 82		
Georgetown University.....	(1905)		77.7
Howard University, Washington.....	(1907)		80.6
Woman's Med. Coll. of Baltimore.....	(1906)		77.6
New York University Med. Coll.....	(1891)		81.8
University of Pennsylvania.....	(1906)		89.6
University of Edinburgh, Scotland.....	(1896)		82

College	FAILED	Year Grad.	Per Cent.
National University, Washington.....	(1901)		51.5
George Washington University.....	(1907)	62.7,	68.0
Howard University, Washington.....	(1907)		49.6
Maryland Med. Coll.....	(1907)		62.5
Tufts Coll. Med. School.....	(1900)		63.1
Jefferson Med. Coll.....	(1882)		63

At the examination held in July, the total number of candidates examined was 35, of whom 21 passed and 14 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University, Washington.....	(1907) 87; (1908)		83.6
Georgetown University.....	(1907) 85.6; (1908)		85.6
Tulane University, (1905) 81.7; (1907) 75.4,			85.1,
89.9, 90.2.			85.5,
Johns Hopkins Med. School.....	(1908)		86.9
Woman's Med. Coll. of Pennsylvania.....	(1908)		96.4

College	FAILED	Year Grad.	Per Cent.
National University, Washington.....	(1902)		64.9
George Washington University, (1907) 70.7, 74; (1908)			56.8,
64.9, 71.2.			
Howard University.....	(1907) 54.9, (1908)		73.5
Georgetown University.....	(1903)		72.5
Tulane University of Louisiana.....	(1903) 68.4; (1908)		70.7
Baltimore Med. Coll.....	(1907)		55
Leonard Med. School.....	(1908)		43
Jefferson Med. Coll.....	(1908)		73.4

At the examination held in October the total number of candidates examined was 27, of whom 14 passed and 13 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Columbian University, Washington.....	(1904)		76.7
George Washington University, (1906) 75.1; (1908) 75.3, 75.9,			77.8, 81.1.
Howard University, Washington.....	(1908)		83.8
Georgetown University.....	(1908) 76.6, 77.1, 85.4, 80.9		
Johns Hopkins Med. School.....	(1906)		79.2
Baltimore Med. Coll.....	(1908)		78.1
Harvard Med. School.....	(1898)		81

College	FAILED	Year Grad.	Per Cent.
National University, Washington.....	(1902)		58.9
Howard University.....	(1908) 65.2, 74.6, 74.7		
George Washington University, (1905) 47.5; (1907) 71.8; (1908)			67.8, 69.4, 72.7.
Tulane University of Louisiana.....	(1908)		71.8
Maryland Med. Coll.....	(1908)		56.5
Baltimore Med. Coll.....	(1907)		63.8
Jefferson Med. Coll.....	(1908)		74.5

Kentucky November Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, November 17-19, 1908. The number of subjects examined in was 10; percentage required to pass, 70. The total number of candidates examined was 43, of whom 19 passed and 24 failed. Two candidates were licensed without examination, one through reciprocity and the other under the exemption clause. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville.....	(1908) 73, 76, 79, 79, 83, 83, 84		
Louisville and Hospital Med. Coll., (1906) 78; (1908) 72, 73, 74,			79, 83.
Kentucky School of Med.....	(1908)		80, 81
Hospital Coll. of Med., Louisville.....	(1906)		72
Barnes Med. Coll.....	(1904)		80
Woman's Med. Coll. of Pennsylvania.....	(1907)		90
Meharry Med. Coll.....	(1908)		71

College	FAILED	Total Grad.	Total No. Exam'd.
Louisville and Hospital Med. Coll.....	(1908)	10	
University of Louisville.....	(1907) (7, 1908)	8	
Kentucky School of Med.....	(1908)	2	
Louisville National Med. Coll.....	(1908)	1	
University of Tennessee.....	(1908)	1	
Meharry Med. Coll.....	(1908)	2	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Pennsylvania.....	(1903)	Virginia

LICENSED UNDER EXEMPTION CLAUSE

College	Year Grad.
University of Louisville.....	(1899)

Massachusetts November Report

Dr. Edwin B. Harvey, secretary of the Board of Registration in Medicine, reports the written and oral examination held in Boston, November 10-12, 1908. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 77, of whom 53 passed, including 2 non-graduates, and 24 failed, including 2 non-graduates. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Illinois Med. Coll.....	(1903)		76.3
American Med. Miss. Coll.....	(1906)		75
Chicago Coll. of Med. and Surg.....	(1908)		75.5
Johns Hopkins Med. School.....	(1905)		80.7
College of P. and S., Baltimore.....	(1907) 81.2; (1908)		77.3
Baltimore Med. Coll.....	(1908)	76.5,	82.5
University of Maryland.....	(1908)		79.8
Medical School of Maine.....	(1906)		77
Harvard Med. School, (1906) 80.2; (1907) 83; (1908) 75, 77.6,			79.5, 80, 80.8, 82, 84.
Tufts Coll. Med. School, (1906) 81.4; (1908) 75, 75, 75.3, 75.7,			75.8, 76.2, 76.4, 76.5, 76.7, 76.9, 77, 77.4, 79.5, 80, 80.
College of P. and S., Boston.....	(1905) 75, 77; (1908)		75.0
Boston University.....	(1907)		75
University of Michigan.....	(1907)		77
Dartmouth Med. School.....	(1907)		80.8
Long Island Coll. Hospital.....	(1906)		80.8
University and Bellevue Hosp. Med. Coll., (1906) 79.1; (1907) 82.2			
North Carolina Med. Coll.....	(1904)		75.2
Cleveland Homeopathic Med. Coll.....	(1880)		82.4
Woman's Med. Coll. of Pennsylvania.....	(1908)		80.9
University of Vermont.....	(1906) 77.7; (1908) 78.4, 82.2		
University of Athens, Greece.....	(1900)		75

College	FAILED	Year Grad.	Per Cent.
Howard University, Washington.....	(1907)		70.4
Chicago Coll. of Med. and Surg.....	(1908)		57.3
Hahnemann Med. Coll. and Hosp., Chicago.....	(1885)		62.3
Baltimore Med. Coll., (1905) 60.2, 60.2, 73; (1908) 70, 70.3, 73.4,			73.5, 73.5.
Maryland Med. Coll.....	(1908)		63.5
Boston University.....	(1908)		73.2
Tufts Coll. Med. School.....	(1908) 69.7, 69.7		70.9
College of P. and S., Boston.....	(1908) 58, 64.3		65.8
University Coll. of Med., Richmond.....	(1907)		56.1
Laval University, Canada.....	(1905)		63.5
University of Palermo, Italy.....	(1891)		67

Missouri November Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the written examination held at Kansas City, November 23-25, 1908. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 46, of whom 25 passed and 21 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Exam'd.
Hahnemann Medical College and Hospital, Chicago.....	(1903) (1906)		2
Rush Med. Coll.....	(1901)		1
Keokuk Med. Coll., Col. P. and S.....	(1908)		1
University of Kansas.....	(1908)		1
University of Louisville.....	(1907)		1
Kentucky School of Med.....	(1908)		1
Baltimore Med. Coll.....	(1908)		1
Johns Hopkins Med. School.....	(1906)		1
St. Louis University.....	(2, 1906) (2, 1908)		4
University Med. Coll., Kansas City.....	(1908)		1
Homeopathic Med. Coll. of Missouri.....	(1908)		1
Kansas City Hahnemann Med. Coll.....	(1908)		2
Washington University, St. Louis.....	(1906) (1908)		2
Western Reserve University.....	(1907)		1
University of Pennsylvania.....	(1903)		1
Woman's Med. Coll. of Pennsylvania.....	(1907)		1
Meharry Med. Coll.....	(1908)		2
University of Palermo, Italy.....	(1893)		1

College	FAILED	Year Grad.	Total No. Exam'd.
University of Arkansas.....	(1908)		1
Washington University, St. Louis.....	(1908)		2
Kansas City Hahnemann Med. Coll.....	(1908)		3
University Med. Coll., Kansas City.....	(1908)		1
St. Louis Coll. of P. and S., (1906) (1907)			6
Barnes Med. Coll.....	(4, 1908)		1
American Med. Coll., St. Louis.....	(1907) (1908)		2
Ensforth Med. Coll.....	(1908)		1
Creighton Med. Coll.....	(1908)		1
Lincoln Med. Coll.....	(1907)		1
Meharry Med. Coll.....	(1908)		2

Nebraska November Report

Dr. E. J. C. Sward, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 4-5, 1908. The number of subjects examined in was 8:

total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 18, of whom 16 passed and 2 failed. Seventeen reciprocal licenses were granted at this meeting. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Hahnemann Med. Coll. of the Pacific.....	(1908)		86.8
Denver and Gross Coll. of Med.....	(1908)		86.8
College of P. and S., Chicago.....	(1888)		90
College of P. and S., Keokuk.....	(1896)		89
Louisville Med. Coll.....	(1907)		90.7
University of Nebraska, (1891) SS; (1895) S5; (1897) 90; (1902) 80, 84; (1903) SS.....			76, 84.1
Creighton Med. Coll.....	(1908)		79.5
Lincoln Med. Coll.....	(1908)		90.7
University of Pennsylvania.....	(1889)		82.8
Meharry Med. Coll.....	(1908)		
Creighton Med. Coll.....	(1908)		*73.6
Nebraska Coll. of Med.....	(1908)		*67.1

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
Hahnemann Med. Coll., Chicago.....	(1907) (1908)	Illinois
Northwestern Univ. Med. School.....	(1908)	Illinois
Chicago Col. of Med. and Surg.....	(1908)	Illinois
College of P. and S., Chicago.....	(1903)	Illinois
Rush Med. Coll.....	(1904) (1907)	Illinois
Dunham Med. Coll.....	(1900)	Illinois
Hering Med. Coll.....	(1908)	Illinois
Curtis-Physio Medical Institute.....	(1894)	Nevada
College of P. and S., Baltimore.....	(1896)	Illinois
University of Minnesota.....	(1895)	Minnesota
Barnes Med. Coll.....	(1908)	Illinois
Creighton Med. Coll.....	(1907)	Iowa
Lincoln Med. Coll.....	(1908)	Kansas
University of Nashville.....	(1899)	Kansas
Medical Coll. of Virginia.....	(1900)	W. Virginia

New Jersey October Report

Dr. J. W. Bennett, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 20-21, 1908. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 56, of whom 40 passed and 16 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School.....	(1908)	80.8	82.7
Howard University, Washington.....	(1907) 79.4; (1908)		80, 82.2
Medical Coll. of Georgia.....	(1901)		75.4
Hahnemann Med. Coll., Chicago.....	(1908)		79.9
College of P. and S., Baltimore.....	(1907) 75.4; (1908)		82.1
University of Maryland.....	(1908)		82.1
Baltimore Med. Coll.....	(1906) 79.5; (1907) 75; (1908)		79.5, 79.8
Johns Hopkins Med. School.....	(1906) 85.7; (1908)		80.8
University and Bellevue Hosp. Med. Coll.....	(1908)		79.3, 82.3
Long Island Coll. Hosp.....	(1906) 83.8; (1908)		77.3, 79.2
Cornell Univ. Med. Coll.....	(1908)		86.7
Columbia Univ. Coll. of P. and S., New York.....	(1904) 81.1; (1906) 81.6; (1907)		81.8
Western Pennsylvania Med. Coll.....	(1908)		78.7
University of Pennsylvania.....	(1907) 75.4, 85.2; (1908)		84.9, 88.7
Jefferson Med. Coll.....	(1899) 75.5; (1908)		82.8, 88.8
Hahnemann Med. Coll., Philadelphia.....	(1906)		81.1
Woman's Med. Coll. of Pennsylvania.....	(1903)		83
Medico-Chirurgical Coll., Philadelphia.....	(1908)		80.8, 82.2
University of Vermont.....	(1907)		76
McGill University Quebec.....	(1905)		79.8
Queen's University, Ontario.....	(1908)		85.4

FAILED

University of California.....	(1905)	73.4
University of Louisville.....	(1907)	67.5
Kentucky School of Med.....	(1906)	62.5
Maryland Med. Coll.....	(1908)	69
Baltimore University.....	(1903)	67.7
University of Michigan.....	(1880)	67.4
Long Island Coll. Hospital.....	(1881) 71.5; (1907)	73.7
New York University Med. Coll.....	(1880)	71.3
Albany Med. Coll.....	(1902)	71.2
Hahnemann Med. Coll., Philadelphia.....	(1895)	73
University of Naples, Italy, (1896) 68.3; (1905) 65.8; (1906)		71.7
University of Rome, Italy.....	(1896)	67
Royal University of Turin, Italy.....	(1900)	69.7

New Mexico October Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fe, Oct. 12, 1908. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. Twenty-five applicants were licensed on presentation of satisfactory credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University.....	(1908)		88.8
Southern Med. Coll., Atlanta.....	(1886)		75
Barnes Med. Coll.....	(1908)		77.3
University of Tennessee.....	(1888) 78.4; (1890)		76.3
University of Nashville.....	(1905)		79.6

FAILED		
Medical Coll. of Georgia.....	(1907)	73.3

LICENSED ON CREDENTIALS

College	Year of Grad.
George Washington Univ.....	(1900)
Atlanta Med. Coll.....	(1875)
Northwestern Univ. Med. Coll.....	(1894) (1906)
Indiana Med. Coll.....	(1906)
University of Iowa.....	(1883)
University of Kansas.....	(1890)
Louisville Med. Coll.....	(1876) (1894) (1905)
University of Louisville.....	(1895) (1898)
Hospital Coll. of Med., Louisville.....	(1906)
Kentucky School of Med.....	(1893)
College of P. and S., Baltimore.....	(1906)
University of Michigan.....	(1874)
Missouri Med Coll.....	(1880) (1896)
University Med. Coll., Kansas City.....	(1903)
St. Louis Coll. of P. and S.....	(1900)
Marion Sims Beaumont Coll. of Med.....	(1899) (1903)
University of Buffalo.....	(1906)
Medical Coll. of Ohio.....	(1900)
Memphis Hospital Med. Coll.....	(1891)

Society Proceedings

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Meeting held at University of Pennsylvania, Nov. 27, 1908

The President, Dr. JAMES EWING, New York, in the Chair

The Antitryptic Power of Cancer Sera

Dr. RICHARD WEIL, New York: During the year a new property supposed to be characteristic of cases of cancer has been described. This is the so-called antitryptic power of the blood serum. It has been known for some years that the blood of an animal can be made to develop an antiferment to trypsin by administering subcutaneous injections of pancreatic extract. Recently it has been shown that the serum of untreated animals inhibits the action of trypsin in varying degrees. Brieger and Trebing, in a series of investigations, showed that this antitryptic power was present in 91.6 per cent. of human cancer cases, and in only 23.7 per cent. of other cases. They used the serum plate method of Marcus. Recently Bergmann and Meyer tested the antitryptic power of the serum in 20 cases of cancer and in 91 of other diseases; they found an antitryptic action of the serum in 92.7 per cent. of the cancer cases and in 24.2 per cent. of non-cancerous cases. They used the casein method of Gross. The two sets of results agree closely. In my work, 22 cases of cancer, 2 of rodent ulcer, and 29 non-cancerous cases were examined in regard to the antitryptic power of the serum. The results obtained by the serum plate method and the casein method were compared and found to agree fairly well. In both methods the proteolytic action is tested. The serum plate method is less reliable and sharp cut than the casein method. By the latter method the following results were obtained: In the cancer cases, 82 per cent. were positive, 18 per cent. negative. In the non-cancerous cases, 25 per cent. were positive and 75 per cent. were negative. Neither case of rodent ulcer was positive. The terms positive and negative denote accurately measurable quantitative differences in the antitryptic power of the serum. These results are not so striking as those obtained by the German observers; nevertheless, they demonstrate that the reaction is almost twice as frequent in cases of cancer as in other diseases. This may be regarded as additional evidence of certain striking alterations in the biologic characteristics of the serum in cancer. The method at present is not of diagnostic value.

Hemolytic Effects of Human Serum

Dr. RICHARD WEIL, New York: About a year ago I reported that in dogs affected with lymphosarcoma the serum was frequently hemolytic toward the red cells of normal dogs, and that this hemolytic action was resisted by the red cells of other dogs growing the same form of tumor. On the basis of a number of preliminary observations I hazarded the statement that in human cancer an analogous condition would be

found. Since then, this hypothesis has been amply vindicated by the work of Crile, Janeway, Epstein and Ottenberg, and Blumgarten along the same line of investigation. The characteristic reaction failed to occur in incipient cases of cancer unless complicated by some other condition. It was absent in the majority of cases of rodent ulcer. It occurred only in cases in which the new growth gave microscopic or macroscopic evidence of necrosis. The tendency was for the reaction to disappear in cases of open or ulcerated growths. The reaction occurred in a certain number of other conditions. The following interpretation of these facts is offered for consideration: The hemolytic power of the serum is not due to any substance or action peculiar to cancer. It may be due either directly to the absorption of the products of tissue necrosis or autolysis, or it may be the result of some reaction to these products. The same explanation holds of the majority, though not all, of the cases of other diseases in which the same serum reaction is obtained. This includes cases of tuberculosis, gummatous syphilis, resolving pneumonia, breaking down fibroids, Hodgkin's disease, and other conditions in which necrosis, caseation, or autolysis of tissue occurs. So far as the diagnostic possibilities of this method are concerned, more facts must be gathered before any practical application should be attempted. For the present, the method is not available for clinical purposes.

Results of Testing Blood Serum in Thirty-five Cases of Cancer, for Hemolytic Properties on the Normal Red Blood Corpuscles

DR. H. H. JANEWAY, New York: In the technic used 1 c.c. of serum was mixed with a 10 per cent. emulsion of red cells, which had been washed 4 times. Six mixtures, including the controls with normal serum and salt solution, were prepared for each test. Of the 35 tested, 8 were a very early stage of cancer of the face of the rodent ulcer type. They were all negative, and it has seemed wise to exclude these from the percentages, as both clinically and pathologically they are at least for such a long time in their history, so different from the usual form of cancer. Of the two late cases of rodent ulcer, both were large steadily advancing and ulcerated growths. One gave a reaction, while the other did not. Including these in the remaining 27 cases, there were 20 late cases of malignant tumors, of which 8 yielded a positive reaction, or 40 per cent. There were 7 cases of early malignant tumors, of which 4 were positive, or 57 per cent. Of the normal sera none showed any hemolysis, but one case of chronic mastitis, used as a control, did show marked hemolysis. As compared with normal sera, it is evident that the possession of isohemolysins is a striking feature of the sera of patients with malignant disease. The diagnostic value of the reaction may be considered from two standpoints. If negative, it is clear that the case can not be regarded with certainty as free from cancer. If positive it is to be regarded with likelihood as a case of malignant disease, provided certain complicating infections giving the same reaction, such as advanced tuberculosis, can be excluded. Although I have not examined other conditions of disease, it is evident from the results of others (Weil, Ascoli, etc.), that the typical reaction occurs in a very small proportion as compared with cases of cancer. It is certain, as previously stated, that, if the serum were tested on a large variety of corpuscles, both from ascertained cases of cancer, and from normal individuals, the percentage of positives could be very considerably increased. Such a technic would not be difficult, if the reaction should become firmly enough established, to permit utilization of only a fractional part of the serum, and the use of the red blood corpuscles from a number of normal individuals: as in these cases, the normal corpuscles can be readily obtained by simply pricking the ear. Such a course would seem to be justifiable, as there is such unanimity among all observers that the serum from normal individuals rarely possesses isohemolytic properties. Tentatively, it might be suggested that in suspected cases of cancer the serum should be tested, as herein described against the normal corpuscles emulsion. If negative, it would be advisable to make a second and more comprehensive test in the manner suggested. At the

present stage in our experience, however, sufficient evidence is not at hand to give this test any great diagnostic value.

Deviation of Complement by Means of the Serum of Sarcoma Rats

DR. GEORGE H. A. CLOWES, Buffalo: The hemolytic system employed in this series of experiments consisted of (1) goat corpuscles; (2) amboceptor, serum of a rabbit immunized against goat corpuscles which had been heated to 57 C. in order to destroy complement; (3) complement, normal guinea-pig serum. The tumor extracts employed were (1) 20 per cent. tumor material in absolute alcoholic; (2) 20 per cent. tumor material in 0.25 per cent. aqueous phenol. In this series of experiments the sera of over 50 rats suffering from sarcoma in various stages of development were tested regarding their capacity for deviating complement when used in conjunction with alcoholic or phenol extracts. As a general rule, it may be said that while no deviation was obtained from the sera of rats having large tumors of 50 grams or over, a marked differential effect was to be noted in several cases in which tumors weighing from 2.5 to 5 grams had taken from 10 to 30 days to develop. This reaction was not uniformly obtained. In certain cases, the sera of rats having tumors weighing approximately 5 grams gave no reaction when tested with various concentrations of both alcoholic and phenol extracts. In no case was it found possible to differentiate between serum of normal rats and of those with large tumors by means of this test. It should be noted that while the differential effect was frequently to be noticed whereby rats with small tumors could be distinguished from normal rats and those having large tumors, the sharpness of the test was found to be dependent to a great extent on the guinea-pig complement employed, the sera of certain normal guinea-pigs being apparently unaffected by the deviating bodies present in the rat sarcoma. We tested at the same time the serum of a dog suffering from lymphosarcoma, supplied to us by Dr. Beebe, in comparison with one which had recovered and normal individuals. The heated sera of the dog with a small sarcoma and the recovered dog exhibited a distinct reaction when compared with two normal dogs, using the extract of a rat sarcoma and also of human carcinoma. This same differentiation was still to be noted two weeks later, by which time the small lymphosarcoma had undergone spontaneous recovery. From the results obtained in the series I am forced to the conclusion that the phenomenon of complement deviation bears some relationship to that of immunity exhibited during and after spontaneous recovery, the most marked differential effect being noted in those cases in which tumors develop relatively slowly and recover spontaneously after having reached a weight of approximately 5 grams.

The Hemolysin Test in the Serum of Sarcoma Rats

DR. GEORGE H. A. CLOWES, Buffalo: The same series of rats as that employed in the other experiments was tested with a view to determining the extent to which the serum of an individual suffering from sarcoma is capable of causing hemolysis of normal corpuscles. The animals were divided into three groups, those with large tumors, those with small tumors and normal. Corpuscles and serum were prepared separately from each of these series and tested all against all. In the individual tests 1 c.c. of a 5 per cent. suspension of corpuscles was incubated for two hours with 0.5 c.c. of serum of the rat to be tested, a control series being carried out in which the serum had previously been heated to 57 C. In three such series of experiments in which 36 rats were employed, a very faint hemolysis, scarcely recognizable, was noted in two cases only, those being rats with tumors weighing respectively 2.5 and 4 grams. It would be quite impossible, however, to make use of this test for diagnosis of rat sarcoma.

Transplantations of the Uterus and the Bearing of the Results Obtained on Some Problems of Tumor Growth

DR. LEO LOEB, Philadelphia: Pieces of uterus were transplanted into the subcutaneous tissue of guinea-pigs in approximately fifty cases. In the majority of experiments the

central part of the transplanted piece becomes necrotic, the peripheral parts, unstriated muscle, blood vessels and some glands remain alive. This holds good in experiments in which the pieces were transplanted into another individual of the same species as well as in experiments in which the pieces were transferred into the same individual whose uterus had been extirpated. There was, however, one marked difference in cases in which autotransplantation (transplantation into the same individual) and heterotransplantation (transplantation into another individual of the same species) had taken place. In the former case, in a certain number of cases in which the uterus had been transplanted from two to nine days after ovulation, deciduomata developed in the transplanted piece; in cases in which the uterus had been transplanted into another individual of the same species deciduomata did not develop, with one exception, even if ovulation had taken place from two to nine days before the operation in the animal into which the uterus had been transplanted. There seems, therefore, to be a marked difference between the body fluids of different individuals of the same species, and although such a difference in the body fluid does not prevent the remaining alive of certain parts of the transplanted uterus, it seems, in the majority of cases, to prevent an excess growth leading to the production of deciduomata. There exists an analogous condition in the growth of tumors. In the large majority of cases tumors grow only if transplanted into the same animal in which they have originated; they can not be successfully inoculated into other individuals of the same species. In this case also the difference in the constitution of the body fluids in different individuals of the same species prevents that excess growth which is the characteristic feature of tumor growth. We are therefore able to give a more complete analysis of the factors underlying a certain kind of tumor-like growth than has been possible heretofore. The growth of deciduomata depends on three factors: First, the presence of preparing (sensitizing) substances secreted by the ovaries at certain periods; second, a mechanical stimulus, the energy of which can be quantitatively varied; third, a specific condition of the body fluids which varies in different individuals of the same species.

This report is merely a preliminary one. Further experiments are being carried out and the outcome of these experiments will determine whether or not the conclusions given can be considered as definite.

Characteristics of Spontaneous Cancer in Mice

Dr. JOHN W. HUNTER, Philadelphia: During the last two years I have studied spontaneous tumors occurring in 20 mice. In 5 mice the tumors were multiple, 1 mouse having 5 tumors, 3 mice had three tumors, and 1 mouse had 2. All these neoplasms were subcutaneous and for the most part situated on the ventral aspect of the abdomen. These growths usually began with a single unit—a simple acinus. In its further growth the form which the tumor takes is modified by (1) the energy of growth, (2) by the internal pressure, (3) by the resistance of the surrounding tissues. In these tumors three main structures are noted: (1) Simple alveoli, (2) larger ducts or alveoli, (3) cell masses. The larger ducts may show papillary ingrowths. The cell masses result from a crowding together of the alveolar structure. They may undergo central degeneration and give rise to ducts or alveoli filled with colloid or empty, or sometimes may show papillary ingrowths. I found fundamental differences in the structure the widest noted being often found in the same tumor. The principal interest which attaches to multiple tumors lies in deciding whether or not they are metastases. In general, I found that the subcutaneous tumors in the same mouse were more nearly alike in structure than the tumors in different mice; but this fact is not at all striking. The nine tumors of Mouse 3, the two of Mouse 5, the three of Mouse 6, and the three of Mouse 15 were all very similar in structure, consisting of small alveoli with more or less tendency to cell massing. Tumors 2 and 3 of Mouse 17 were of slightly different structure from the above, showing small alveoli and large ducts but no cell masses, while Tumor 1 of this mouse revealed a combination of papillary and alveolar formation. This similarity of structure would favor the idea

that they are metastases, but, on the other hand, there are many reasons for believing them to be primary growths: (1) Their position is under the skin and not elsewhere; (2) their location is that of primary growths; (3) their origin is not in lymphatic glands; (4) ducts are present in their periphery; (5) they are about the same size.

DISCUSSION

Dr. LEO LOEB, Philadelphia: I desire to call attention to one mode by which apparently multiple tumors can be formed in a mouse. In one case I observed that a secondary tumor developed in the subcutaneous tissue of a mouse within a few days in direct approximation to the primary tumor. The most probable interpretation of this observation would be the following: The sprouting out or separation of certain parts of the primary tumor takes place and gives origin to a secondary tumor. Very soon ingrowing connective tissue separates entirely these two new growths. A similar process of new formation has been observed and recently described in lymph glands.

A Mucin-Containing Multilocular Cyst of the Ovary

Dr. GUTHRIE McCONNELL, St. Louis: In 1852, Scherer examined the material obtained from ovarian cysts and found two bodies that he called met-albumin and par-albumin. Further contributions were made by Scherer in 1865 and by Eichwald, but little was added to the original description. In 1882 the subject was taken up by Hammarsten who examined the contents of forty ovarian cysts. As a result of these investigations he concluded that the characteristic element of ovarian fluids was a substance to which he gave the name of pseudomucin. He also was of the opinion that the material called met-albumin by Scherer was the same as pseudomucin, while par-albumin was a mixture of pseudomucin and albumin, the latter largely in the form of serum albumin. Hoppe-Seyler in 1903 was of a similar opinion. In addition to pseudomucin, various substances known as mucoids are present in these tumors. One of these, occurring in the form of a jelly-like material, was described in 1895 by Mitjukoff and given by her the name of paramucin. Briefly summarized, there are mucin, pseudomucin and paramucin, the two latter being found in ovarian cysts, the first, according to Wells, is not found in such growths. In the case of a white woman, aged 45, the material was obtained *intra vitam* and examined chemically by the routine methods. It was found to differ from both pseudomucin and paramucin in its reactions, but to resemble true mucin in the following respects. On being boiled with acid it yielded a product that reduced Fehling's solution, it dissolved in very weak alkali solutions and was precipitated by the addition of acetic acid.

Primary Sarcoma of the Spleen

Dr. GUTHRIE McCONNELL, St. Louis: In February, 1907, a man of 29 strained his left side while lifting a trunk. This was followed by pain and difficulty in breathing. As a result he had to give up his work for two weeks. For several months following he was free from pain, then it again appeared, being worse at night. He finally improved gradually but noticed a swelling on the left side about the ninth rib. This slowly increased in size, but was not painful. In July, 1908, he was operated on, portions of two ribs being removed and the swelling examined. An x-ray picture had already shown that the trouble was below the diaphragm. On getting through the chest wall there was opened a cavity about the size of two fists. This was filled by a brownish-red, thick grumous material, resembling broken down splenic tissue. The walls of the cavity were smooth. Microscopic examination of the tissue showed it to be spleen but scattered throughout it were found numerous small masses of atypical cells surrounding blood spaces, giving the appearance of a perithelial sarcoma or endothelioma. The patient made an uneventful recovery. Since the operation he has gained in weight, and at present, some four months later, is in good health.

The Reactions of Regenerating Tissues on the Animal Body

Dr. CHARLES R. STOCKARD, New York: Experiments have been conducted on animals regenerating new tissues in order

to determine whether or not normal undifferentiated growths exert injurious or malignant effects on the bodies from which they arise. The experiments show that new regenerating tissue has the power to continue growing at the expense and to the exhaustion of the old body tissues. The regenerating part requires a certain amount of food in order to grow, but this food may be obtained in ways which differentiated tissues can not make use of; in fact from starving tissues themselves. Since the new parts in regeneration are formed directly out of the old tissues, we may assume that the excessive capacity of assimilation of young parts is connected with their lack of differentiation and, therefore, lost when differentiation takes place and regained again when differentiation is lost. Regeneration exerts an effect which is in a degree malignant on animals as different meduse and salamanders. The power of regeneration is only present to a limited extent in men and mammals; yet their general processes of growth are similar to those of lower animals.

DISCUSSION

DR. LEO LOEB, Philadelphia: The interesting experiments of Dr. Stockard demonstrate the dependence of the growth of one part of the body on the other parts. His results take perhaps a position midway between two other sets of experiments. About fifteen years ago Miss Bickford showed that during the process of regeneration new organs are formed in tubularia through direct transformation of one part of the body into a new organ. Morgan gave to this process the name "morphallaxis." Another process differing in some respects but still related has been described in fishes by Miescher. This author found that at certain times in the life of a fish the growth of the ovaries takes place at the expense of the muscle tissue, which latter is partly used up in the course of the process.

I am not certain that the cachexia which we find frequently during the growth of malignant tumors is due to similar conditions. I am inclined to believe that such cachexia is due to secondary processes of an entirely different character. As to the effect of calcium and potassium salts respectively on the growth of tissues I am inclined to regard the difference in the contents of calcium and potassium salts in necrotic and in growing tissues as a secondary condition, and not as a cause of tumor growth. We know that calcium is liable to be deposited in necrotic areas of various kinds and that on the other hand the protoplasm of cells contains relatively more potassium in contradistinction to the surrounding body fluids which usually contain more sodium. I am not certain that control tests have been published which would establish that growing tumors have a much larger content in potassium than other organs rich in cells and poor in connective tissue. In Dr. Stockard's experiments, potassium in the surrounding body fluid seems to be favorable to tissue growth. This condition is different from the one found in growing tumors in which the potassium has been found inside the cells.

A Study of Heredity with Reference to Susceptibility to an Inoculable Tumor of Japanese Waltzing Mice

DR. E. T. TRYZZER, Boston: An adenocarcinoma occurring in a Japanese waltzing mouse was successfully transplanted to normal individuals of the same variety. It has now been propagated by inoculation from animal to animal for more than two years and its inoculation into waltzing mice has invariably yielded a high percentage of positive results. In most experiments, 100 per cent. of the waltzing mice inoculated developed tumors. The inoculation of tame white or colored mice has in all cases resulted negatively. In order to obtain data concerning the inheritance of the susceptibility to this inoculable tumor, a certain stock of common mice were bred with Japanese waltzing mice. In the first experiment, the offspring of common males and Japanese waltzing females were inoculated with the result that tumors developed in every instance. The offspring of Japanese waltzing males and common females were then tried and these also were found susceptible in every instance. In each experiment, comparative series of an equal number of common tame mice, of Japanese

waltzing mice, and of their hybrid offspring were inoculated with the same tumor at the same time. The inoculation of common mice resulted negatively in all instances, while tumors developed in all the Japanese waltzing mice, and also in the first generation of hybrid offspring irrespective of whether they were derived from a common mother or from a Japanese waltzing mother. It was at this time observed, and has since been found true in all succeeding experiments, that the average rate of tumor growth is more rapid in the series of first generation hybrids than in comparative series of Japanese waltzing mice. If the rate of tumor growth is compared in individuals rather than in the entire series, exceptions to this general rule are not infrequent; that is, in certain Japanese waltzing mice the tumor may attain greater size in a given time than in certain individuals of a comparative series of first generation hybrids. On the basis of results such as these, it was thought at that time that the susceptibility to an inoculable tumor might possibly be inherited in accordance with Mendel's law. Susceptibility and non-susceptibility would then be considered "characters," and in this instance susceptibility would be a dominant character since it was manifested in all the hybrids of the first generation. In order to test this hypothesis, the first generation of hybrids were bred *inter se*, and in the series of experiments which followed, fifty mice of the second generation were inoculated. They invariably failed to develop tumors, while control series of both Japanese waltzing mice and first generation hybrids developed tumors in every instance. So far only three mice of the third generation have been inoculated, and these three gave negative results. Thus it is evident that neither susceptibility nor non-susceptibility to the inoculable tumor used are of themselves of the nature of Mendelian characters. It does not appear, however, that on these grounds the influence of heredity is to be disregarded, for there remains the distinct racial difference of common mice and Japanese waltzing mice in their susceptibility to the tumor used.

The Relationship of Spirochetes to Cancer Mice

DR. H. R. GAYLORD, Buffalo: This paper is a continuation of observations published in 1907 in *The Journal of Infectious Diseases*, on a spirochete in primary and transplanted carcinoma of the breast in mice. Continuation of the search for spirochetes in hardened sections stained by the Levaditi method, of primary mouse tumors, showed spirochetes present in large numbers at the margins of 40 primary tumors out of 48 examined. Of these 4 tumors were contaminated and were discarded, 4 were not contaminated and did not contain spirochetes, so far as the sections examined would indicate. Having determined the great frequency of these organisms in primary tumors, it became desirable to investigate the blood of mice suffering with tumors and also the blood of mice from various sources, to ascertain the relative frequency of spirochetes in the blood. By use of the Reichert dark-ground illuminating apparatus, it was found that a large number of mice with primary and transplanted tumors had spirochetes in the blood. Ten mice without cancer from a breeding establishment in Massachusetts where cancer is endemic, showed 7 positive, 3 negative; 15 mice from the District of Columbia examined on the same date showed 11 positive, 4 negative; 10 more from the same source gave 6 positive, 4 negative; 12 from Detroit, Mich., gave 9 positive and 3 negative; 5 mice reared in the laboratory, 2 positive, 3 negative. From these observations it will be seen that spirochetes can be found in the blood of apparently normal mice in about 70 per cent. of all cases investigated at a given time. Since the publication of my original paper I find that the mouse spirochete can be stained, although with difficulty, with the Giemsa stain, and with the aid of the dark-ground illuminating apparatus the presence of a flagellum can be occasionally demonstrated. Attempts to find spirochetes in the enclosed tumors of animals other than mice have been entirely without result. The entire absence of spirochetes in enclosed human cancer, in cancer in animals other than mice, and the occurrence of occasional strains of transplanted mouse cancer without the presence of spirochetes, are strongly opposed to any etiologic relation between spirochetes and cancer in general. The extreme

prevalence of spirochetes in mice is amply sufficient to explain the presence of spirochetes at the margins of primary cancer in these animals.

Primary Lymphosarcoma in Dogs Treated with Injections of Fluid Blood from Recovered Dogs

DR. H. R. GAYLORD, Buffalo: As further evidence of immunity in the blood of animals recovered from lymphosarcoma, as shown by the transfusion experiments of Crile and Beebe. I report three cases of lymphosarcoma, all in bull dogs, one bitch and two dogs, which were treated by injection of fluid blood from an immune dog furnished by Dr. Beebe. The blood was taken directly from an artery into a test tube containing Hirudin in salt solution which prevented coagulation of the blood, and the injection was made into the base of the tumors with the result that all tumors so treated retrograded and ultimately disappeared. All three dogs have remained free from tumors since the time of treatment to date, about four months. The apparent importance of preventing coagulation of the blood suggests the possibility that the leucocytes play an important rôle in the preservation of the immune characteristics of the blood of recovered animals, and suggests the desirability of isolating the leucocytes of immune animals, a series of experiments to this end having already been undertaken.

An Epidemic of Cancer of the Thyroid in Brook Trout in a Fish Hatchery

DR. H. R. GAYLORD, Buffalo: This is a preliminary report on the investigation of a fish hatchery, in which an epidemic of carcinoma of the thyroid in two-year-old brook and brown trout exists at the present time. In this hatchery, the water supply is from a spring coming out of a hillside, which runs into a basin or pond from which it is piped to a small reservoir and then through a series of tanks which draw their supply directly from the reservoir. Carcinoma of the thyroid was discovered in a fish in the basin on the hillside two years ago. One year ago, this basin was emptied and restocked with young fish and feeding was practiced for the first time in this upper pond. Of the tanks fed from the water passing through this pond, one tank containing 3,700 brook trout 2 years old, hatched from eggs brought from a hatchery in an adjoining state where the disease is not known to exist, showed 700 fish in various stages of the disease. The outbreak occurred in the early autumn and fresh cases are continually developing. In an adjoining tank, which has no connection whatsoever with the tank in question, are 200 brown trout reared from eggs hatched on the premises. Between 3 and 4 per cent. of these fish show disease. The infected fish at no time have come in direct contact with the fish in the upper pond where the disease is known to have existed; neither at any time have the brook trout and the brown trout been in contact with each other. I believe that the state of affairs found in this fish hatchery point very strongly to the infectious nature of this form of cancer and that the contagion is water-borne. It is possible that feeding liver into the waters of the fish hatchery has some relation to the outbreak in this case. I know of a second fish hatchery where the disease was endemic for a number of years, and where the feeding of liver has been changed to the feeding of chopped sea fish and in the last three years the disease has disappeared. I also know of two other fish hatcheries in which the disease is endemic, and I am undertaking a systematic and careful study of a number of fish hatcheries for the purpose of further determining the conditions under which the disease occurs.

DISCUSSION

DR. JAMES EWING, New York: Two years ago I received several fish which came from a hatchery, the location of which I do not know. Some of the tumors were large and microscopic sections showed them to be rapidly growing carcinoma of marked virulence.

DR. COLEY, New York: I sent Dr. Ewing the specimens of cancer in fish two years ago. They were obtained from a private hatchery in central Pennsylvania, at which time there were a considerable number of fish suffering from the same disease.

NEW YORK ACADEMY OF MEDICINE SECTION ON SURGERY

Regular Meeting, held Jan. 8, 1909

DR. ELLSWORTH ELIOT in the Chair

Direct Blood Transfusion for Gastric Hemorrhage

DR. CHARLES H. PECK: This patient, a woman, was admitted to the hospital on July 1, after having had ten severe hemorrhages from the stomach in seven days. On account of her critical condition operation was deferred and the following day fresh bleeding occurred. Transfusion of blood was decided on, the woman's husband being the donor. The flow was maintained for thirty-five minutes with immediate improvement to the patient. Before the transfusion was begun the hemoglobin was 30 per cent., the red cells 999,000 and the blood pressure was 105; immediately after transfusion the hemoglobin was 60 per cent., the red cells numbered 2,400,000 and the blood pressure was 144. On July 7 her pallor increased and hemoglobin was again 30 per cent. and red cells 1,040,000 and gastroenterostomy was performed. There were no macroscopic evidences of ulcer and her convalescence was uneventful, the patient leaving the hospital twenty-four days after the gastroenterostomy. The case was interesting because of the direct benefit following the blood transfusion. I am unable to say just what part gastroenterostomy played in the recovery.

Sarcoma of the Calf of the Leg

DR. JOHN F. ERDMANN: The illness of this patient, a dentist, aged 22, began two years before he saw me. His right calf was swollen and larger than his left. The calf gradually increased in size, becoming hard and fixed. It was semi-fluctuant and the size of a cocoanut. The circumference was 19½ inches. I excised the tumor, taking away with it the gastrocnemius, together with all tissue that looked suspicious. The man made a perfect recovery; he has no difficulty in walking or standing and can raise the body while standing on the affected foot alone.

Direct Blood Transfusion with Description of a Simple Method

DR. JOHN A. HARTWELL: The improved method of end-to-end suture of the donor's artery and the recipient's vein, as practiced by Carrell, gives perfect results in animals, and has been used with success in the human subject. It is, however, a very difficult operation, and in the hands of many surgeons has failed because of the formation of a clot. Its success depends on the most rigid asepsis, and a careful attention to every detail. My experiences, as well as those of others, led me to devise some simpler and more certain method for the transfusion of blood. The radial artery of the donor is dissected out for a distance of two inches, or more if convenient, under cocaine anesthesia. The small branches are isolated and tied, and a ligature thrown around the distal end, but not tied. The wound is covered with a moist, warm pad. An accessible vein in the forearm of the recipient, below the bend of the elbow, is exposed for the same length. If possible, a small tributary is dissected free for an inch at some point central to the proposed site of anastomosis. This is loosely clamped at its distal end. A ligature is then tied around the distal end of the main vein, and the vein divided just central to it. If needed, a light obstructing clamp is put on the vein higher up, but this is not always required. The adventitia is carefully stripped from the cut end of the vein, and three sutures of fine silk impregnated with petrolatum are passed through the media and intima on the cut circumference of the vein. The wound is then covered with a moist warm pad. The artery ligature is then tied, an obstructing clamp is gently placed on its exposed central part, and the artery is divided with sharp fine scissors just above the ligature. The adventitia is removed from the cut end, and then a small roll of it is slid upward along the artery for a distance of an inch or more, and left attached. Through this a silk ligature is passed, tied and cut about one-half of an inch long. The artery is then immersed in liquid petrolatum, and by means of a small forceps gently grasping it at about one inch from its cut end, is passed directly into the mouth of the vein, which

is held open with the three sutures. The arterial wall is sufficiently rigid to make this step easy. One, or if need be two, of the venous sutures are then clamped either to the suture, in the adventitia, or to a radial branch, in order to prevent the separation of the two vessels, and the excess of venous circumference is clamped so as to hold the artery snugly, but not to constrict it. The obstructing clamps are then removed, and the flow proceeds. The dangers to the recipient attending the operation fall under four heads, viz., a hemolytic action of one blood on the other, the entrance of blood or air emboli into the circulation, the use of a donor who had some undemonstrable communicable blood disease, and overdistention of an enfeebled right heart. The following conclusions are offered: 1. The operation of direct blood transfusion as practiced with suture and canula shows a large percentage of unsatisfactory results. It requires special instruments and unusual skill for its successful execution. 2. The direct entrance of the artery into the vein has proved a simpler and more satisfactory method in a large series of experiments and in one clinical case. 3. At present we have no means of obtaining accurate knowledge of the quantity of blood entering the vein. The changes in hemoglobin, red cell count, pulse rate and blood pressure must all be given weight in estimating this quantity. Actual weighing of the donor may solve the problem. 4. The operation is not without danger from hemolysis, embolus or overdistention of the right heart, but with proper care these should be avoidable. All the animals used in the work were fully anesthetized with ether.

Plastic Surgery of Blood Vessels and Direct Transfusion of Blood

DR. ISAAC LEVIN: This late development of vascular surgery is due to the special difficulties encountered in dealing with this organ. Here, in addition to the usual aseptic precautions, the surgeon has to take into consideration the possibility of a secondary hemorrhage and the formation of thrombosis with subsequent arrest of the circulation and embolism in some vital organ. To implant an arterial segment successfully means to avoid the formation of an intravascular thrombus after operation. Blood remains fluid so long as it circulates in a vessel lined with unimpaired living endothelium. Should the endothelium be injured a thrombus must form. In the implantation of arterial segments of different animal species, and segments that have been kept for days in an ice box at a temperature of 0 and 1 C., the question presents itself whether these segments remain alive or whether it is possible to implant devitalized arterial segments. In collaboration with Dr. John Larkin, I performed a series of experiments with the transplantation of devitalized segments. The technic followed was that elaborated by Dr. Carrell. In the first series of experiments we transplanted into the abdominal aorta, in two dogs and two cats, segments of the abdominal aorta of the same species of animals placed for a few minutes in boiling water. In the second series, we transplanted into the abdominal aorta, in two dogs, segments of a human ureter procured at a fresh autopsy and hardened in 4 per cent. formalin. In both series the circulation in the femoral arteries ceased soon after the operation, paralysis of the lower extremities developed, and the animals died within twenty-four hours. The autopsies showed that the implanted segment had collapsed and presented a much smaller lumen than the abdominal aorta of the host. In a third series, we implanted in the abdominal aorta in two dogs and two cats segments of the abdominal aorta of the same species hardened in 4 per cent. formalin. The segments selected had the same lumen as the abdominal aorta of the host. The result in every experiment was the formation of thrombus, paralysis of the lower extremities and death within two or three days after the operation. We then selected segments with a wider lumen than the aorta of the host. One animal did well for ten days and then died. Both anastomoses held perfectly; the implanted piece was patent without any thrombi. A second animal also did well for ten days, but died under anesthesia given for the purpose of dressing the wound. These results seemed to show that for ten days the blood was passing through a dead canal and it remained fluid. It seems only nec-

essary that the implanted tube have a very smooth surface, that its lumen correspond perfectly with the lumen of the rest of the blood vessels and the line of anastomosis be perfectly smooth and even. The temporary anastomosis required for the direct transfusion of blood is more readily and quickly accomplished with the aid of some mechanical appliance.

Clamp Designed for Direct Blood Transfusion

DR. ISAAC LEVIN: This clamp requires less complicated technic and less time for the performance of the operation than Crile's instrument does. The instrument is an artery clamp without the grooves. At the tip of each blade there is attached a small canula with a smooth bore, and at the inner edge of each canula are attached four small pin points and on the other surface of the canula four grooves are cut. When the clamp is closed the pins of one canula lie in the grooves of the other. At the beginning of operation the halves of the canula are separated; the vein is pushed through one canula and its wall is hooked on the pins. The same is done with the artery and the other half of the clamp. Then both halves are united and clamped. Both blood vessels are thus connected with the serous surfaces.

Discussion on Blood Vessel Surgery

DR. GEORGE E. BREWER: I have ideas similar to those of Dr. Hartwell, and have experimented with the result that I present two glass tubes that I have made. At each end there is a small nodule and a sulcus in which the vessel is to be tied. It is coated with a liquid paraffin. I have tried these tubes on animals with success; the operation is easy and the results marvellous. I have taken a dog; bled him until he was apparently dead, then transfused from another dog until the first one was resuscitated and the second nearly dead, repeating this many times. This is but a preliminary report of my work.

DR. GEORGE WOOLSEY: When I saw Dr. Crile perform the operation it looked easy, but I found that the technic was not so easy. The great improvement shown is in the time consumed in operating.

DR. C. CLARENCE SICHEL: I performed transfusion on a woman who had a profuse hemorrhage following delivery, the donor being the husband. The glass tube was used and a perfect recovery followed the operation.

DR. CHARLES H. PECK: I have used the canula for transfusion in three cases successfully.

DR. CLARENCE A. MCWILLIAMS: In four cases I have transfused with the Crile method, two being successful and two being failures. The failures were due to the fact that the radial arteries were small, the canulae also were small, and when the vein was pulled through there was no lumen left. The Crile method was somewhat uncertain.

DR. CHARLES A. ELSBERG: I have devised a simplified transfusion canula which has proved successful in my hands.

Exarticulation of Shoulder for Carcinoma of the Humerus

DR. JOSEPH WIENER: A Russian, aged 56, had had endocarditis for several years. About a year and a half ago he sustained a fracture of the upper third of the humerus, which was followed by good union. About six months ago he began to have pain in the right arm, which steadily grew worse. During the past two months there was complete disability of the right arm. The whole upper extremity was seen to be atrophied from the disease. At the upper third of the humerus there was a bony tender swelling. A small hard nodule was noted in the median line of the prostate. There were no urinary symptoms. The fluoroscope showed the bone in the upper third of the humerus to be completely destroyed. Exarticulation at the shoulder was performed. The tumor involved the shaft of the humerus and had perforated into the muscles. A diagnosis of metastatic carcinoma possibly primary in the prostate was made.

Other Papers Read

"Fracture of the Os Magnum," by Dr. E. W. Peterson;
"Foreign Body in the Intestines," by Dr. W. S. Schley;
"Supracondyloid Fracture of the Left Humerus, with Malposition of the Fragments," by Dr. Joseph Wiener.

WESTERN SURGICAL AND GYNECOLOGICAL
ASSOCIATION

Eighteenth Annual Meeting, held at Minneapolis,
Dec. 29 and 30, 1908

(Concluded from page 322)

Repair of the Internal Ring in Oblique Inguinal Hernia

DR. F. GREGORY CONNELL, Oshkosh, Wis.: The methods of radical cure of oblique inguinal hernia may be divided into two unequal divisions: 1. That in which the result is an anatomic reproduction of the normal relations. 2. That in which the resulting relations are markedly different from the normal. The various steps in the anatomic repair of oblique inguinal hernia consist of, (1) the removal of the sac, with redundant parietal peritoneum; (2) repair of the internal ring; (3) protection of the ring by suture of the internal oblique muscle to Poupart's ligament; (4) reunion of the aponeurosis of the external oblique muscle with the formation of a proper external ring.

Diagnosis and Treatment of Renal Calculi

DR. DANIEL N. EISENDRATH, Chicago: The number of cases in which calculi are found in both kidneys simultaneously is increasing. The chief points in the diagnosis, so far as symptoms are concerned, are hematuria, pain and passage of calculi. X-ray diagnosis is of value, and also a thorough knowledge, before operating, of the x-ray functional action of each kidney. The treatment is chiefly surgical. The operation of choice is nephrotomy and pyelotomy.

DISCUSSION

DR. W. D. HAINES, Cincinnati: The mistake of operating on one kidney without knowing the condition of the opposite one has been the undoing of several men. I do not wholly agree with Dr. Eisenrath that he would not operate for stone in case he could not find x-ray evidence of it. I removed a stone from the kidney year before last in the face of the disputing evidence of the x-ray. A very competent man made several exposures and could not find a stone; but the patient had the symptoms of continuous microscopic blood in the urine for quite a period of time; he had pus in the urine, and typical colic coming on at various times, and I thought that with these three symptoms, even though the x-ray did not show a shadow, I would be warranted in operating, and so in this instance did so, removing the stone. While I like the laboratory method of making a diagnosis, we must not get away from making it without the aid of the laboratory.

DR. M. L. HARRIS, Chicago: The clinical history of cases in which the stone is in the substance of the kidney is often obscure. I have just had such a case, and removed stones from a man who was sent to me with a diagnosis of chronic appendicitis, because of the indefiniteness of the symptoms and the fact that he had a little tenderness and more or less pain on the right side. In these cases, the pain is indefinite and more or less continuous, but is increased by violent exercise or labor. He was a laboring man and complained of backache. Continued microscopic examinations of the urine showed very few red blood cells, but they were practically constant. Considering the pain, the presence of blood cells in the urine, and a vague sense of discomfort in the lumbar region high up, some x-rays were made which showed that the cause of the discomfort was a calculus in the parenchyma of the kidney, not communicating at all with the pelvis. It was removed with gratifying result.

DR. B. B. DAVIS, Omaha: In the case of a woman, pregnant five months, on whom I operated with the idea of anchoring a movable right kidney, much to my surprise, I found a large stone, very rough and lobulated, in the pelvis of the kidney. This was removed, the kidney anchored at the same time, and the woman made a good recovery, went on to term, and was delivered safely at the end of nine months.

DR. W. W. GRANT, Denver: In a case of cystic adenoma in which I operated, the symptomatology simulated kidney stone; I removed the kidney. It has been nearly two years since the operation, and the patient, a woman, has been perfectly well.

Removal of the Gall Bladder

DR. ARCHIBALD MACLAREN and DR. H. P. RITCHIE, St. Paul: Cholecystectomy was performed twenty-one times in 165 operations on the gall bladder, liver and pancreas. Pain is the most constant symptom and was definitely localized in the gall bladder in all cases, except two, in which the symptoms were ascribed to other abdominal conditions. Inflammatory history was obtained in fourteen cases. The occurrence may have been remote, recent, or immediate. Tumor was found in seven cases. Ages of patients ranged from 25 to 74 years. There were four cases in males and seventeen in females. The gall bladder was without stones in four cases. In six histories there was evidence of jaundice, in three of these cases there was a stone in the common duct, and in the other three a stone was found in the cystic duct. Three cases showed perforation of the gall bladder. In two cases the gall bladder was removed at a second operation. The cystic duct was tied nine times, and drained with tube nine times. Once the forceps was left in situ. The reasons for removal of the gall bladder were: Contracted and useless gall bladders in ten cases, dilated and hypertrophied in six cases, phlegmonous and gangrenous gall bladders, one case, empyema two cases, mucous fistula two cases. Results: three deaths have occurred—14.2 per cent. mortality. The gall bladder was removed in three cases in which the common duct was involved. We believe in leaving the gall bladder in common duct cases for the purpose of cholecystenterostomy if it could be so used when needed. Both drainage and ligation of the cystic duct are proper procedures and depend on the individual case.

The greatest interest in the pathology of the gall bladder is centered in the gross changes. Each specimen should be studied for malignancy, but usually ends in demonstrating different degrees of changes resulting from infection or circulatory interference. No specimen of our series was removed until it was definitely shown that the organ was irreparably damaged. It is difficult to lay down rules for the removal of the gall bladder. The fear of a second operation has been the cause of the excision of organs which might have been saved. In nine cases contracted and cystic gall bladder empyema from typhoid fever and other conditions were left and the patients remained well from varying periods up to nine years. Often after drainage bile will not commence to flow until the fourth or even up to the seventh day. There are many cases in which the gall bladder is so definitely diseased that there would be no question as to the necessity of removal. Those cases in which it is difficult to decide are cases of cystic gall bladders in which the stone has been impacted a short time, or those which present small hemorrhagic spots, or moderate-sized perforations. And we believe with Deaver that in case of doubt we should drain. Pancreatic disease occurs frequently in gall-bladder diseases and drainage is necessary for cure. The fact must not be overlooked when the question of cholecystectomy is to be considered. Cholecystectomy is influenced by the surgeon's own experience, and we must not look at the records of others and tell patients that the mortality from this operation has been reduced to 2 or 3 per cent., forgetting that the man whom we are unconsciously quoting has only attained his 3 or 4 per cent. by a greater experience than our own, and no doubt through bitter trials and losses.

New Incision to Reach the Bile Tracts

DR. CLIFORD U. COLLINS, Peoria, Ill.: This incision through which to reach the bile tracts begins at the inner edge of the right rectus muscle within two inches of the ensiform cartilage, and extends diagonally downward and outward through the skin, fat and anterior wall of the sheath. The rectus muscle is separated from its sheath and retracted outward. The same diagonal incision is then made through the posterior wall of the sheath and peritoneum. A short transverse incision from the upper end through the linea alba, and another from the lower end through the linea semilunaris complete it. The advantages are: 1. There is not a continuous opening down through the layers of the abdominal wall. The opening through the aponeurotic structures are protected by the

uninjured muscle, which lies between them. 2. The intercostal nerves are not injured as they enter the muscle through its outer border. 3. It makes a stronger closure when drainage is required. The tube or gauze holds the rectus muscle to the outer side. When it is removed, the muscle slides over to its former bed and places a barrier of uninjured muscle across the drainage tract. 4. No injury is done to the muscular structure. An instrument to facilitate the removal of stones from the first portion of the common duct consists of forceps with an incomplete ring at the end of each jaw covered with rubber tubing. If the stone is found in the first portion of the common duct, or can be pushed up into the first portion, the lower jaw of the forceps is passed into the foramen of Winslow below the stone. When the jaws are closed, the incomplete rings will surround the stone and it may be drawn up into the incision.

Pericolitis

DR. JABEZ N. JACKSON, Kansas City, Mo.: Pericolitis has been said to be due to adhesions about the colon, mostly of unknown origin. I believe that there is a form with a distinct pathologic identity, and characterized by a distinct clinical picture, and for which an operation is suggested. Thus far my experience is limited to five experiences of rather recent date, and while therefore not conclusive, has been sufficiently satisfactory to warrant hope in its future. This pericolitis is characterized by the formation of an apparently entirely new layer of distinctly vascularized peritoneum in which the vessels are parallel and appear to begin on the outer side at the root of the mesocolon, whence they advance on to the colon and then generally pass in the direction parallel to the long axis of the ascending colon. This membrane serves to bind the ascending colon close to the posterior abdominal wall, and the longitudinal strands tend to produce a shortening and often a marked angulation of the colon. Sometimes this membrane passes across the ascending colon and up on to the transverse colon, which is then drawn downward and to the right until the transverse colon parallels the ascending colon and a distinct angulation is produced at the hepatic flexure above and below where the transverse colon turns back. With this latter condition the stomach is always drawn down and a mechanical gastropsis is produced. The general effect of this membrane is a mechanical interference with the free peristalsis of the colon, also the stomach, thus producing stagnation, distention, pain, flatulency and a train of nervous symptoms distinctly neurasthenic in character. This condition is believed to be of very frequent occurrence, and must have been observed by all surgeons of experience, but thus far has not been adequately described. I have found that this membrane can be dissected off *in toto*, and when this is done the mobility of the colon is restored.

Gastric and Duodenal Ulcer

DR. W. D. HAINES, Cincinnati, Ohio: From 1 to 4 per cent. of all cases in which autopsy was performed in Europe and the United States exhibited ulcer evidence ranging from active ulcer to carcinoma. Lymph anastomosis may be traced from the stomach until the flow is emptied into the general circulation. The glauca-bearing tissue between the lesser curvature of the stomach and the pancreatoco-splenic group of glands should be removed in operating for cancer of the pylorus. By pushing an instrument through the crater of the ulcer-producing artificial perforation, ligating the surrounding varicose vessels and turning in the margin of the ulcer by two layers of serous sutures, local rest is obtained for the inflamed indurated tissues, and a gastrojejunostomy completes the technic. Nearly all gastric cancers have their origin in chronic ulcer. I recommend excision of the ulcer-bearing area after the method of Rodman, when practical, as the best method of dealing with chronic ulcer.

Mistakes in Diagnosis in the Upper Abdomen

DR. JAMES E. MOORE, Minneapolis: I make no effort to elucidate obscure or moot points in diagnosis, but endeavor to point out some common errors that can and should be avoided. The principal reasons for mistakes in diagnosis in all regions

of the body is lack of careful and systematic examination, and the two special reasons for mistakes in the upper abdomen are difficulty in palpation and the comparatively recent origin of upper abdominal surgery. I cite a case in which two operations had been done, one for appendicitis, and one for gallstones, and in which the whole trouble was due to splanchnoptosis. I desire also to direct attention to the dangers of a false history given by a neurasthenic patient, especially every female patient, coming for examination for conditions in the upper abdomen accompanied by abdominal crises, should be carefully examined with a view of establishing the presence or absence of splanchnoptosis because of the dangers of mistaking crises due to ptosis of organs, for gallstones and for other conditions. It is not safe to conclude in the presence of splanchnoptosis that the patient is not suffering from other pathologic conditions, because they are often combined. The evidences of ptosis of the various organs are so plain that they should always be discovered when proper examination is made. The liver is more frequently misplaced and misshapen than is generally understood, and is liable to give rise to mistaken diagnoses. There is danger of overlooking pathologic conditions amenable to surgical treatment in neurasthenic patients. Pott's disease in its early stages, when located in the middle or upper dorsal region, causes pain that has frequently been the cause of mistaken diagnoses. This mistake can usually be avoided by ascertaining the presence or absence of the spine.

Surgical Types of Abdominal Tuberculosis

DR. WILLIAM L. HAGGARD, Nashville: After the lungs and bones, the intestines, pelvic organs and peritoneum are the strongholds of tuberculosis. The duodenum and esophagus seem practically immune, due to the rapid passage of the contents of these tubes which allows no opportunity for microbial fixation. The stomach immunity seems to be due to the destructive action of the gastric juice on the tubercle bacilli. There are nine instances of primary tuberculosis in the literature and fifty-seven cases of secondary involvement of the stomach. The small intestines are usually involved secondarily, but primarily oftener than was formerly believed. About 25 per cent. of tuberculosis is said to gain entrance into the system through the intestinal mucosa. It is a disorder of child life, due most probably to infected cow's milk. Intermittent pain and diarrhea are the chief symptoms; strictures and peritonitis are the principal sequelae. Nearly half of the cases of intestinal stenosis are caused by tuberculosis. Eighty-five per cent. of abdominal tuberculosis occurs in the ileocecal region. Swallowed bacilli are causative. Chronic obstruction sometimes results. Chronic peritonitis with ascites is usually tubercular. Abdominal tuberculosis occurs in females in proportion of 4 to 1. The Fallopian tubes account for this greater prevalence. Patients failing to improve under treatment should have an exploratory laparotomy. Simple laparotomy cured only those cases of the ascitic variety in which the tube becomes adherent, and the tubercular process thus becomes obliterated. Recurrent cases require removal of the focus of disease in the tubes for permanent cure. The ulcerative and fibrous type are unsuited to operation. The suppurative form is usually fatal in spite of operation. Aside from sacculated peritonitis the most constant tumor is the thickened, sausage-shaped omentum lying transversely above the umbilicus. Diagnostic tuberculin was found to give positive results in the majority of cases. Only a third of the medical cures were permanent. Operation gives 85 per cent. of cures. Advanced visceral tuberculosis contraindicates operation. Abdominal operation should include examination of the cecal region, and the pelvis, with removal of all foci without drainage. The operative mortality is not over 3 per cent. I observed postoperative tuberculous wound infection in three cases. Fresh air, sunshine, rest, nourishment, and the tuberculin bacillary emulsion are important.

Peritoneal Adhesions

DR. A. W. ABBOTT, Minneapolis: The cause of peritoneal adhesions is often questionable. Rough handling, hemorrhage and traumatism are given more credit than they should re-

ceive. The relation between adhesions and symptoms is very contradictory. Extensive adhesions often are not accompanied by symptoms; and, *vice versa*, severe symptoms are accompanied by very few adhesions.

The Versatile Omentum

DR. FREDERICK A. DUNSMOOR, Minneapolis: I use the omentum as a patch for wounded intestine, denuded peritoneum, or to fill in ulcerations which are not readily or safely closed. When large pus cavities are opened, after removing the pus and wiping contaminated parts with iodoform gauze, the omentum is in all cases, where possible, made to adhere to the infected part instead of using a drainage tube. 1. It seems sensible to follow natural and physiologic efforts in attempts to cure. 2. The functions of the omentum to combat infection and drain dangerous elements from the peritoneal cavity are well established. 3. We should aim to secure the assistance of such functions, and at the same time use ingenuity to prevent permanent adhesions which might be harmful. 4. We should deprecate the wasteful amputation of parts of the omentum appearing redundant or occupying the hernial sac. 5. Damaged over-affected or strangulated portions of the omentum should be removed, in order that greater utility may be possible from the remainder.

Colles' Fracture

DR. J. W. ANDREWS, Mankato, Minn.: Diagnosis can be made by inspection. Crepitus and increased mobility are rarely present. An anesthetic is necessary for complete reduction, if not for accurate diagnosis. The injuries sustained by the soft tissues are extensive and important. In this form of fracture rapid bony union is the invariable rule. The prevention of deformity is not always possible.

The Cancer Question

DR. J. E. SUMMERS, Omaha: Cancer deserves equally as much attention by the laity as does tuberculosis. More women die of cancer than of tuberculosis. In a better education of the public lies the hope of the prevention of cancer. In its early recognition lies the promise of cure.

Other Papers Read

The following papers were also read: "Splenie Anemia," by Dr. Van Buren Knott, Sioux City, Iowa; "Abdominal Tuberculosis," by Dr. W. D. Haggard, Nashville; "The Surgeon and His Ideals," by Dr. W. E. Rochford, Minneapolis; "Diagnosis and Treatment of Cancer of the Uterus," by Dr. George C. Barton, Minneapolis; "Abdominal Pregnancy; Report of a Case, with Operation and Delivery of the Living Child," by Dr. J. N. Warren, Sioux City, Iowa; "Treatment of Retrodisplacements of the Uterus," by Dr. A. C. Stewart, Duluth, Minn.; "Technic of Cleft Palate Operations," by Dr. J. R. Eastman, Indianapolis; "Accidents and Complications in Gaiter Operations," by Dr. Charles H. Mayo, Rochester, Minn.; "Plastic Surgery of the Abdominal Wall," by Dr. R. C. Coffey, Portland, Ore.

Medicolegal

Important New Ruling on Waiver of Privilege by Plaintiff in Malpractice Case

The Court of Appeals of New York says that the case of *Capron vs. Douglass* was to recover damages against the defendant, a physician and surgeon, for malpractice in treating a fracture of the tibia and fibula of the plaintiff's leg. On the trial evidence by the plaintiff and his witnesses tended to show that the defendant was called as a surgeon to attend the fracture, and that he was negligent in reducing the fracture and in his subsequent care of the patient. After several weeks it was discovered that there had been no union, and the plaintiff was then removed to a hospital, where an operation was performed by a Dr. G., aided by a Dr. D., one of the hospital's staff of surgeons, after which there was a union of the fractured bones and recovery, but with the usefulness of the leg somewhat impaired.

The contention of the defendant was to the effect that he had properly reduced the fracture, placing the broken bones in apposition, but that he was disappointed in their failure to unite, and that the cause of such failure was one that could not be determined by an external examination of the limb, and was only discovered after the plaintiff had been removed to the hospital and an incision made at the place of the fracture, when it was discovered that some of the muscles of the leg had intervened between the broken ends of the bones, preventing their coming together and forming a union. This condition of the fractured bones was discovered by Dr. G. at the hospital, who performed the operation, and was testified to by him as a witness for the defendant, without objection by the plaintiff. The defendant then called as a witness Dr. D., who assisted Dr. G. in the operation, but his evidence was excluded on the objection of the plaintiff's counsel, under the provisions of Section 834 of the New York Code of Civ. Procedure.

Section 834 provides: "A person duly authorized to practice physic surgery, . . . shall not be allowed to disclose any information which he acquired in attending a patient, in a professional capacity, and which was necessary to enable him to act in that capacity." Section 836 provides that the provisions of the section apply to a surgeon, "unless the provisions thereof are expressly waived on the trial or examination by the person confessing, the patient or client. . . . The waivers herein provided for must be made in open court, on the trial of the action, or proceeding, and a paper executed by a party prior to the trial, providing for such a waiver shall be insufficient as such a waiver."

There could be no question with reference to the discovery made by Dr. G. and Dr. D., in their operation on the plaintiff at the hospital, coming within the express language of the provisions of Section 834 of the Code, and the testimony, therefore, under ordinary circumstances would be privileged. But the question here presented was as to whether such privilege had been waived by the plaintiff on the trial. He and his counsel sat by, and permitted the testimony of Dr. G. to be given without interposing any objection thereto, thereby waiving the privilege which the plaintiff might have availed himself of had he seen fit. He had thus permitted the condition of his broken limb to be given to the public in an open trial, thereby forever preventing it and its condition from being a secret between himself and his physician.

The intent of the legislature in enacting the statute making such information privileged was, doubtless, to inspire confidence between the patient and his physician, so that the former could fully disclose to the latter all the particulars of his ailment without fear that he might be exposed to civil or criminal prosecution, or shame and disgrace, by the disclosure thus made, and thus enable the latter to prescribe for and advise the former most advantageously.

It would seem that under certain authorities the plaintiff, by admitting the evidence of Dr. G. to be given with reference to the discovery made at the operation, thereby also must be deemed to have waived the privilege as to Dr. D., who was there assisting Dr. G. in the operation. But the court prefers to place its decision in this case on broader grounds.

This action, as we have seen, was for malpractice. The plaintiff, both in his complaint and in his testimony, fully disclosed all of the details of his affliction as it existed both at his home and at the hospital. He gave in much detail how the fractures occurred, how they were treated, his pain and suffering, and so far as he was able to comprehend, when not under the influence of anesthetics, the particulars of the operation at the hospital. He himself had therefore given to the public the full details of his case, thereby disclosing the secrets which the statute was designed to protect, thus removing it from the operation of the statute. In other words, he had waived in open court on the trial all information which he might have kept secret, by disclosing it himself.

The character of the action necessarily called for a disclosure of his condition and the treatment that was adopted by the defendant and those assisting him. To hold that the plaintiff might waive the privilege as to himself and his own

physicians, and then invoke it as to the defendant and his physicians, would have the effect of converting the statute into both a sword and a shield. It would permit him to prosecute with the sword, and then shield himself from the defense by the exclusion of the defendant's testimony. It would enable the plaintiff to testify to whatever he pleased with reference to his condition and the treatment adopted by the defendant, without fear of contradiction. The plaintiff could thus establish his cause of action, and the defendant would be deprived of the power to interpose his defense by reason of the closing of the mouth of his witnesses by the provisions of the Code referred to. Such a construction of its provisions the court thinks was never contemplated by the legislature. It would lead to unreasonable and unjust results. Instead thereof, the court prefers a construction of the provisions of the Code to the effect that when the privilege of the plaintiff has been once waived by him in court, either by his own testimony or by that of others given with his knowledge and consent, and his physical condition has been given to the public, the door is then thrown open for his opponent to give the facts as he understands them. This, to the court's mind, affords a more just and equitable rule, and is the one that was evidently contemplated by the legislature.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

January 14

- 1 *Football Injuries of the Harvard Squad for Three Years Under Revised Rules. E. H. Nichols and F. L. Richardson, Boston.
- 2 *Typhoid Carriers Found in a Series of Typhoid Fever Patients at the Time of Their Discharge from the Boston City Hospital. W. T. Graham, C. L. and J. E. Overlander and M. A. Dailey, Boston.
- 3 Reminiscences of America. M. Boehm, Berlin.
- 4 Epidemic of Dengue in the Philippine Islands. H. W. Jones, U. S. Army.
- 5 How May the Medical and Scientific Spirit Best be Promoted in Our Institutions? C. A. Drew, Bridgewater, Mass.

1. **Football Injuries.**—Nichols and Richardson analyze the injuries received by the Harvard football squad during the season of 1905, under the old rules, and the seasons of 1906, 1907 and 1908 under the revised rules. They conclude that not only has the number of injuries been markedly diminished, but there has been a diminution in the average of severity, and the character of the game has been changed for the better, not only from the point of view of the player and the spectator, but also from that of the surgeon.

2. **Typhoid Carriers.**—As the result of careful experiments at the Boston City Hospital, Graham, C. L. and J. E. Overlander and Dailey found 23 per cent. of a series of 65 typhoid patients showing typhoid bacilli in the stools and urine for ten days before their discharge. The authors urge that the stools and urine of all typhoid patients be examined for typhoid bacilli during the last ten days preceding their discharge from medical care, and those patients with positive stools or urine should be detained. If at the end of ten weeks bacilli are still present, the patients should remain under the supervision of the Board of Health wherever they may go, until they cease to be carriers.

Medical Record, New York

January 16

- 6 Darwinism and Malaria. R. G. Eccles, Brooklyn.
- 7 Vaccine Treatment of Typhoid. W. H. Watters and C. A. Eaton, Boston.
- 8 Practical Value of Tincture of Iodin and Iodin Catgut in Major Surgery. W. T. Dannreuther, New York.
- 9 *The Immediate Versus the Deferred Operation for Extrauterine Pregnancy. A. Sturmdorf, New York.
- 10 A Cyst of the Prostatic Vesicle. N. A. Mikhalloff, St. Petersburg, Russia.
- 11 Early Recognition of Esophageal Stricture. S. Lange, Cincinnati.

9. **Operation for Extrauterine Pregnancy.**—Sturmdorf argues against the deferred operation for ruptured tubal pregnancy. He refers to the theory that not abdominal hemorrhage, but operative shock added to the shock incidental to the rupture of the

tube, is the cause of the mortality. He cites three factors brought forward in support of this contention: 1. Active bleeding from the ruptured vessel is not observed during operation; 2, the amount of blood lost is never lethal, according to physiologic laws; 3, pregnant bitches with severed arteries never bleed to death. He states that he knows of no operation for shock and that if shock and not the loss of blood is the cause of death, then any operation, immediate or deferred, is contraindicated. In answer to the first point he states that the absence of visible spurting from the ruptured artery is due to a natural series of events. A hemorrhage occurs, severe enough to produce syncope, that means cerebral anemia, which results in a diminution of frequency and force of the cardiac systole and prolongation of its diastole; as a consequence there is a slowed blood current which favors clotting. This is Nature's remedy for grave hemorrhage. The abdomen is opened, and the intra-abdominal pressure is found to be increased in proportion to the amount of the extravasation; the incision converts this hypertension into a hypotension, as a result of which the large abdominal veins dilate at the expense of the arterial contents. The uterus or tubes being drawn into the incision are angulated, thus obstructing the circulation through the ovarian arteries. And yet we find those who are surprised at the absence of spurting. Dogs can not bleed to death from severance of ovarian arteries. Even the carotid may be severed in a dog without fatal results, owing to the excessive development of the elastic tunic in canine blood vessels. Nevertheless, while dogs do not bleed to death from rupture of their arteries, women do—as witness the fatal results following the accidental slipping of ligatures from tied ovarian arteries after operations for other pelvic conditions.

The studies of Crile and others show conclusively that an absolute differentiation between shock and concealed hemorrhage is clinically impossible. Nor can a hemoglobin estimation, as recently advocated, aid in this differentiation. The immediate result of hemorrhage on the blood is quantitative and not qualitative, consequently the last drops must show the same hemoglobin content. We bleed our blood as a whole and not our hemoglobin only. Every active therapeutic effort must be directed against the etiologic factor. This etiologic factor is the ectopic pregnancy—remove it. The contributory and fatal factor is the ruptured vessel; seal it by the only measures known to surgery—prompt ligation. In short, says Sturmdorf, let us leave dogs and theories aside and operate promptly in ectopic gestation.

New York Medical Journal

January 16

- 12 *The Role of the Bureau of Health in Public Vaccination. A. C. Abbott, Philadelphia.
- 13 *Smallpox Before and Since the Discovery of Vaccination. J. F. Schamberg, Philadelphia.
- 14 *The "So-called" Dangers of Vaccination. W. N. Welch, Philadelphia.
- 15 *Legal Aspects of Vaccination. H. L. Carson, Philadelphia.
- 16 James Blake. J. W. Wainwright, New York.
- 17 Treatment of Neurasthenia by Static Electricity. J. H. Branth, New York.
- 18 Further Report on the Jungle Plant (Combretum Sundiacum) in Morphine Addiction. W. D. Silkworth, New York.
- 19 *The Sexual Factor in Tuberculosis. W. H. Peters, Providence, R. I.

12 to 15. Abstracted in THE JOURNAL, Jan. 2, 1909, pp. 69, 70.

19. **The Sexual Factor in Tuberculosis.**—In this article Peters refers to a former article (THE JOURNAL, March 21, 1908) and summarizes the opinions of men experienced in the treatment of this disease, to whom he had addressed a letter requesting their views on the management of the sexual factor, its relation to the home treatment, and their opinion as to abnormal sexual desire in the consumptive adult. The consensus of opinion from the men interviewed shows that the majority were of the opinion that increased sexual desire is not a condition due to the toxins generated in the tuberculous; that such a desire is due chiefly to idleness, and that occupation on the part of the consumptive is a necessary adjunct to the treatment. Sexual indulgence, however, is a serious bar to the home treatment; married patients gain faster in sanatoria.

Lancet-Clinic, Cincinnati

December 9

- 20 Points in the Use of Massage and Passive and Active Mobilization in Treatment of Traumatic Joint Affections H A Oldenborg, Chicago
- 21 Anteprutum Hour Glass Contraction of the Uterus S C Carson, Greensboro, Ala
- 22 Odontomata B M Ricketts, Cincinnati

Medical Fortnightly, St. Louis

January 11

- 23 Touring the Lands Where Medical Science Evolved R G Eccles, Brooklyn
- 24 Education and Organization in the War on Tuberculosis G Homan, St. Louis

Virginia Medical Semi-Monthly, Richmond

January 8

- 25 Surgical Tuberculosis with Special Reference to Tuberculin in Diagnosis and Treatment R T Taylor, Baltimore
- 26 Diagnosis and Treatment of Tuberculosis of the Testicle. W L Peple, Richmond, Va.
- 27 Diagnosis and Treatment of Pneumonia J H Dunkley, Saltville, Va
- 28 Diagnosis, Treatment and Prognosis of Pneumonia. T. J. Hughes, Saltville, Va.
- 29 Carcinoma of the Breast. H M Taylor, Richmond, Va
- 30 Frequency of the Absence of Skin Lesions in Syphilis D D Staike, Norfolk
- 31 New Standards in Medical Education, and Some of Their Results R H. Whitehead, Charlottesville, Va
- 32 *Existing Relations Between the General Practitioner and the Specialist. J W. Boice, Washington, D. C.

32 Abstracted in THE JOURNAL, Nov. 7, 1908, p 1624.

Journal of the Michigan State Medical Society, Detroit

December

- 33 Infective Possibilities of Cow's Milk C H. Johnston, Grand Rapids
- 34 Diet in Gynecology. J. H. Kellogg, Battle Creek
- 35 Neglected Fields in Medicine W S Anderson, Detroit.
- 36 Dostrums and Proprietary Preparations W. T. Dodge, Big Rapids
- 37 Perplexing Points in Serum Therapy M. P. Kemp, Detroit.
- 38 Technic of Suprapubic Prostatectomy. G. H. Palmerlee, Detroit.

International Clinics, Philadelphia

Vol IV, Eighteenth Series

- 39 Advance of Physical Therapeutics J H Pratt, Boston.
- 40 Treatment of Gastric Ulcer Based on the Results of One Hundred and Forty Cases J A Lichty, Pittsburg
- 41 Psychotherapeutics, with Special Reference to the Influence of the Mind on the Body. C D. Palmer, Cincinnati, Ohio
- 42 Treatment of Gout J. W. Walnwright, New York.
- 43 Splanchnoplex—Enteroplex—Glennard's Disease T. R Brown, Baltimore
- 44 Primary Splenomegaly (Splenic Anemia). E P. Weber, London.
- 45 Gangrenous Appendicitis, with Spontaneous Cure Due to Discharge Through Intestine A L Benedict, Buffalo
- 46 Acute Dilatation of the Stomach A G Nicholls, Montreal
- 47 Fractures of the Skull G. T. Vaughan, Washington, D. C
- 48 Traumatic Lesions of the Semilunar Cartilages of the Knee Joint A N McGregor, Glasgow, Scotland
- 49 Pneumonia Complicated by Pneumococic Arthritis. A. Hand and J H Jopson, Philadelphia
- 50 Personal Observations on Bier's Hyperemia. G. W. Dwy, Pittsburg, Pa
- 51 Paronychia Lateralis C G Cumston, Boston, Mass.
- 52 Buried Catgut and a Subcuticular Stitch in Plastic Operations on the Perineum B M Auspach, Philadelphia
- 53 Series of Malignant Ovarian Neoplasms F G Bushnell, Brighton, Eng. and M P. Kerrawalla, London, Eng
- 54 Work on the Gynecologic Ward of the Western General Hospital, Montreal A L Smith, Montreal
- 55 New Form of Scoliometer H Hudson, Philadelphia, Pa
- 56 Role of Insects in the Transmission of Disease, M A Brown, Cincinnati, Ohio
- 57 Pseudobulbar Palsy. J H Lloyd, Philadelphia
- 58 Neurasthenic Syndrome D J McCarthy, Philadelphia
- 59 Relation which Hypertrophy of the Various Tonsils of Waldeyer's Ring Bears to the Etiology of Disease. R B Scarlett, Philadelphia.
- 60 Symptomatology of Anterior Poliomyelitis J H McKee, Philadelphia
- 61 Serotherapy Treatment of Epidemic Cerebrospinal Meningitis. C H. Dunn, Boston
- 62 Etiology and Treatment of Pernicious Malaria W. H. Deaderick, Marianna, Ark
- 63 Bronchial Calculi C B Fair, Philadelphia

Denver Medical Times and Utah Medical Journal

December

- 64 Criticism of Modern Training School Methods from the Stand point of the Surgeon H G Wetherill, Denver, Colo
- 65 The Three Graces C B. Dyde, Greeley, Colo.
- 66 Phases of Medical Economics G T Neuhaus, Denver.
- 67 The Doctor in Politics W J Fairhead, Delta, Colo
- 68 Surgical Comments C E Tennant, Denver
- 69 National Department of Public Health as a Factor and Incentive to State and Local Efforts W T. Hasler, Lehi, Utah
- 70 Scleroderma, Gangrene of Lung and Removal A J Hosmer, Salt Lake City
- 71 Oral Sepsis or Unclean Mouth as Cause of Disease N H Packard, Springville, Utah

Western Medical Review, Omaha, Neb.

December

- 72 Serodignosis of Syphilis A Schalek, Omaha, Neb
- 73 *Artificial Obstetrical Dilatation of the Cervix Uteri. A. B. Somers, Omaha, Neb
- 74 Some Difficult Complicated Confinement Cases (concluded). J R Gilbert, Morrill, Neb
- 75 Correction of Septal Deformities. H L Buriel, Omaha, Neb

73. Dilatation of Cervix.—Somers says that the methods of dilatation that most nearly imitate natural processes are to be preferred. The method that induces or accelerates labor should be chosen, rather than a method of forcible dilatation, for the purposes of delivery without producing labor. The earliest stages of dilatation can be best accomplished by bladed steel dilators. The next degree of dilatation can best be accomplished by hydrostatic bags. The final degree of dilatation may be safely accomplished in selected cases by manual methods. Rapid forcible dilatation by any and all methods is to be condemned, except in case of emergency with the most urgent indications, and should be ranked with Cesarean section as a major operation. Cervical incisions should be resorted to only when the supravaginal cervix is fully dilated and then only by experienced operators.

Journal of Abnormal Psychology, Boston

October-November

- 76 Psychologic Factors in Dementia Praecox—An Analysis A. A Brill, New York
- 77 *My Life as a Dissociated Personality B. C. A.
- 78 *The Unconscious M. Prince, Boston

77. Dissociated Personality.—This is an account, by the subject herself, of her experiences as a multiple personality. She shows considerable intellectual power coupled with training in psychology, which makes her introspective observations valuable.

78. The Unconscious.—Prince discusses conscious and unconscious memory, the formation of complexes, the formation of complexes in hypnotic and other associated conditions of the personal consciousness, the composition of dormant complexes, the conservation of complexes, and the formation to a great extent of the dormant consciousness from the sifted experience of ourselves and our predecessors.

Vermont Medical Monthly, Burlington

December

- 79 *Specialism in Medicine G H Gorham, Bellows Falls.
- 80 *Puerperal Eclampsia W N Bryant, Ludlow
- 81 *Puro Scribendi or Puro Loquenda (sic).* W. A. Lyman, Burlington
- 82 Extrauterine Pregnancy. W J Aldrich, St. Johnsbury.

79. Specialism.—Gorham says that it is rare for a man to become a successful specialist unless he is first a successful general practitioner. He sketches an advanced course of three years study in a specialty, to be taken after the conclusion of ten years in general practice, and suggests that this course should lead to a higher degree. We do not need more specialists, but more men thoroughly trained in some special line of medical work. He particularly criticizes the pseudospecialists with whom the country is studded and pleads for a more intimate relation between the general practitioner and the specialist

80 Puerperal Eclampsia.—Bryant discusses the subject in general and concludes that the total output of urinary solids in the twenty four hours is of much greater significance than the presence or absence of albumin in the urine. In the treatment of the eclamptic state, veratrum viride, in suitable cases, given hypodermically to effect in heroic doses, has the endorsement of practical men and the prestige of eminent authority, and deserves high rank as a remedy in this disease.

Wisconsin Medical Journal, Milwaukee

December

- 83 *Causal Factors in the Production of Monsters C. R. Bardeen, Madison
- 84 Diagnosis and Treatment of Hip Joint Disease V. F. Marshall, Appleton
- 85 Use of Trichloracetic Acid. M Iverson, Stoughton.

83. Monsters.—Bardeen discusses the development of the embryo, and considers faulty implantation of the ovum most frequently the cause of abnormal development and arrest of development of the human ovum. He refers to experimental

data as showing how readily monsters may be formed by mechanical or chemical means in the lower forms of life. The results of tubal pregnancy show how frequently pathologic embryos or monsters may be produced by an unfavorable environment acting on the human ovum. There is no evidence, he asserts, that maternal impressions have anything to do with the production of monsters.

Journal Oklahoma State Medical Association, Guthrie

December

- 86 Gangrenous Inflammation of the Cecum. V. Berry, Wetumka.
- 87 Sanitary Problems of the Canal Zone—How We Are Solving Them—Organization and Methods. W. C. Gorgas, U. S. Army.
- 88 State Medicine with Suggestions for Sanitary and S M. McComas, Elk City.
- 89 Tumor Pathology twice.
- 90 Oposonic Index an W. W. Rucks, Guthrie.
- 91 Tuberculin and L. M. Warfield, St. Louis.

Pennsylvania Medical Journal, Athens

December

- 92 *Opportunities of the Medical Profession in the Far East. T. G. Simonton, Pittsburg.
- 93 *Diseases of the Ear from a Medical Standpoint. W. H. Cameron, Pittsburg.
- 94 *Nasal Accessory Sinus Complications, Following Influenza, with Treatment. G. A. Dillinger, Pittsburg.
- 95 *Personal Experiences in the Surgery of Simple Types of Goiter. J. M. Wainwright, Buffalo, N. Y.
- 96 *Surgical Treatment of Malignant Goiter. E. Martin, Philadelphia.
- 97 Relations of the Thyroid Gland. S. P. Beebe, New York.
- 98 *The Roentgen-ray in Exophthalmic Goiter. J. C. Price, Scranton.
- 99 Fees and Fee Bills. W. H. Hartzell, Allentown.
- 100 Contract Practice. J. B. Donaldson, Canonsburg.
- 101 Is Lodge Practice a Preventable Evil? A. B. Hirsch, Philadelphia.
- 102 Fees for Services to Corporations. G. W. Wagoner, Johnston.
- 103 Influence of Hospitals on the Doctor's Income. C. H. Ott, Sayre.
- 104 Medical Practice as Seen from the Outside. J. B. Walker, Philadelphia.

92. Abstracted in THE JOURNAL, Oct. 3, 1908, p. 1178.

93. Abstracted in THE JOURNAL, Oct. 17, 1908, p. 1356.

94. Abstracted in THE JOURNAL, Oct. 24, 1908, p. 1456.

95. **Surgery of Simple Goiter.**—Wainwright reports statistics of 18 patients operated on, of whom 13 were females and 5 were males. Ten cases occurred in people born in Wales or of Welsh parentage, which would apparently show that the Welsh are prone to this disease. All the patients recovered from operation, and 17 are alive and well to-day. One died of a rapid recurrence of malignant goiter five weeks after operation. There were no accidents due to the anesthetic, which was ether by the drop method, preceded by atropin. Primary union was obtained in all cases. The majority of patients ran a temperature of from 101 to 103 F. for four or five days after the operation. Tetany was not observed. Under ordinary circumstances operations for the simple type of goiter present no more danger than those for hernia or many other operations of choice. All patients giving symptoms of pressure and all showing progressive enlargement should be operated on at once. Wainwright follows Crile's rule, of leaving behind an amount of thyroid tissue about equal to the size of the normal gland.

96. **Surgical Treatment of Malignant Goiter.**—Martin says that in recent years radical cure of malignant goiter has appeared distinctly probable, provided early diagnosis be made. As this can never be made with certainty, operation, if done early, will sometimes be done on thyroids which subsequent examination will show to be benign. This is not to be regretted, for such an operation is a safe one, and a pathologic organ, which if allowed to remain might at some time undergo malignant change, ought to be removed. Distinction between the various kinds of malignant disease can not be made clinically. As the capsule of the gland offers considerable resistance, metastasis may occur early by the blood or lymph vessels, while the primary tumor is still intracapsular. In advanced cases diagnosis is easily made, but is likewise futile. Operation done early is comparatively simple and has a mortality so low as to give it absolute justification. Even after metastasis has occurred, it may be possible to remove the gland, together with the metastatic focus. With

involvement of the trachea and esophagus and infiltration of the adjacent tissues, radical cure becomes a remote possibility, although complete extirpation regardless of structure has occasionally given good results.

98. **Roentgen-Ray Treatment of Exophthalmic Goiter.**—Price advocates the use of the rays in selected cases, especially in cases in which the surgeon refuses to operate, and in patients with symptoms not sufficiently severe to send them to surgeons.

American Journal of Medical Sciences, Philadelphia

December

- 105 *Treatment of Tetanus with Subarachnoid Injections of Magnesium Sulphate. R. T. Miller, Baltimore.
- 106 *Traction in Treatment of Hip Disease. W. H. Bradford and B. Soutter, Boston.
- 107 The Heart in Pulmonary Tuberculosis. L. Brown, New York City.
- 108 *The Heart During Early Period of Convalescence from Acute Infectious Disease. B. Robinson, New York.
- 109 *Non-Fatal Coma in Diabetes. C. N. B. Camac, New York City.
- 110 *Pathologic Changes in the Thyroid, as Related to Varying Symptoms in Exophthalmic Goiter. L. B. Wilson, Rochester, N. Y.
- 111 *Inferior Polioencephalitis in Child of Four—Recovery. C. F. Judson and H. Carncross, Philadelphia.
- 112 *The Gonococcus as a Factor in Infections Following Abortion or Full Term Delivery. F. B. Gurd, Montreal, Can.
- 113 *New Method of Staining the Diphtheria Bacillus. W. H. Rush, St. Louis.
- 114 Nature of Postoperative Femoral Phlebitis. W. H. Buhlg, Chicago.

105. **Magnesium Sulphate in Tetanus.**—Miller reports a case successfully treated by 2.5 c.c. injections of a 25 per cent. solution of magnesium sulphate into the meninges, 11 punctures being made in 13 days. Extensive paralysis followed each injection and involved all the muscles except those of the head, neck and diaphragm, and lasted approximately from 18 to 29 hours. The injections were followed several times by respiratory collapse, lasting from 11 to 14 hours, and the pulse dropped, though not to a dangerous level. Antitoxin was used daily for 14 days, with copious saline enemas and sedatives for a short time. The case was one of severe tetanus in a boy 8 years old. There can be no doubt as to the value of treatment in this case. A patient in violent spasm and continuous opisthotonos was repeatedly reduced to complete and lasting relaxation in the course of a few minutes by an intraspinal injection of magnesium sulphate; a result was thus achieved surely, promptly and safely, which can be but weakly approximated by the usual sedatives, and even then after hours instead of minutes. The chief danger in the use of intraspinal injections of magnesium sulphate lies in its direct depressing influence on the respiratory center; this effect was produced repeatedly. No constant effect of the injection of the magnesium on temperature was shown. Retention of urine was the rule, and it was necessary to catheterize the patient for nine days. The author abstracts the hitherto reported cases.

106. **Hip-Joint Disease.**—Bradford and Soutter discuss the various modes of dealing with hip-joint disease, and pay special attention to the method of traction. This method has been prejudiced by the use of expensive and elaborate appliances. They discuss the mechanics of the joint and report the statistics of hip disease at the Boston Children's Hospital, in which for thirty years some form of effective traction has been used. They say that traction can be employed without using expensive or elaborate apparatus; it does not demand unusual skill in nursing or from the surgeon, or more attention in the direction of the case than is within ordinary possibilities. It can be claimed that traction meets a pathologic indication during the acute stage, that is, the stage of muscular spasm; that when used it should be applied with the purpose of furnishing distraction, that is, checking undue bone crowding; that when efficiently applied it furnishes a satisfactory measure of fixation of the joint; and that when traction is employed better results are obtained than when it is not made use of during the course of treatment of hip disease.

108. **The Heart in Acute Infectious Disease.**—Robinson insists on the importance of paying proper attention to the

heart in all cases of infectious diseases, after the disease has been battled with. He emphasizes the necessity of not confounding pathologic lesions due to other and preceding causes with those due to the infectious disease under investigation. This is especially true of the lesions of pre-existing myocarditis. He then discusses the prophylactic treatment of the heart after typhoid fever, scarlet fever, pneumonia, etc.

109. Abstracted in THE JOURNAL, May 30, 1908, p. 1817.

110. The Thyroid and Exophthalmic Goiter.—In an elaborately illustrated article, Wilson discusses the pathologic changes in the thyroid gland in relation to the symptoms in exophthalmic goiter, and makes the following tentative statements from the clinical standpoint:

1. Very early acute cases show pathologically hyperemia and cellular hyperplasia. If not throughout the gland at least in much of it provided of course the more enlarged lobe has been removed.

2. Later acute, moderate, severe and very severe cases show greater parenchyma increase, and in many instances evidence of increased absorbable secretion. Speaking broadly, the parenchyma increase is in direct proportion to the intensity of the symptoms. The relatively few variations from this rule, may be accounted for by the varying resisting power of different individuals. When relatively small amounts of absorbable secretion are found in alveoli whose walls are crowded with actively functioning cells, we may fairly assume that the secretion has already been absorbed.

3. Cases which clinically are showing any remission of toxic symptoms show somewhere within the gland more or less evidence of decreased function in the exfoliation or marked flattening of parenchyma cells, or of probably decreased absorption, by the presence of thick, gelatinous, stainable secretion, the so-called colloid.

4. Patients who have recovered from their toxic symptoms and are now suffering principally from long, previously acquired heart or nerve lesions, or from myxedema (although no myxedema cases are included in the present list) show exfoliated or much flattened (probably non-secreting) epithellum and large quantities of well-stained, thick gelatinous, probably non-absorbable, colloid. In this class of cases it seems as futile to search for previous, causative parenchyma increase as to look for diphtheria membrane in the throat of a patient suffering from postdiphtheritic paralysis.

5. The recently described, very mild, cases of long standing, show well-stained, but always some total parenchyma increase. The flattening of alveoli, but apparently not greatly, and the flattening of the individual parenchyma cells. Goiters of the adenoid type apparently pass through the same changes of hypertrophy and degeneration as those of the papilliferous type.

6. Simple goiters should be regarded as multiple retention cysts filled with non-absorbable secretion, cell detritus, etc.

113. Staining the Diphtheria Bacillus.—Rush describes with colored illustrations a method of staining the diphtheria bacillus for which he claims the following advantages: Accessibility of the necessary reagents; ease of preparing the staining solutions; wide working limits; and striking and characteristic appearance of the organisms when so stained.

University of Pennsylvania Medical Bulletin, Philadelphia

December

115 Adenolipomatosis, with Report of a Case. C. K. Mills, Philadelphia.

116 *Comparative Study of Noma. C. Y. White and J. D. Blackwood, Philadelphia.

117 *The Effect of Operation on the Course of Pregnancy and the Influence of Operation on the Course of Pregnancy. L. Loeb and J. W. Hunter, Philadelphia.

118 Stricture of the Esophagus; with Report of Eight Cases from the Children's Hospital of Philadelphia. A. P. C. Ashhurst, Philadelphia.

116. Noma.—White and Blackwood discuss the various theories put forth with reference to the etiology of noma and describe a case in a wild animal (*Macacus rhesus*) showing the anatomic and clinical characteristics of the disease. A fusiform bacillus and spiral micro-organism resembling Vincent's spirillum were found in the exudate and scrapings of the diseased area, there being also a great increase in spiral micro-organisms. The histologic examination showed the presence of rod-like and thread-like organisms similar to those described by Perthes, Brüning and others in the diseased area, being especially located in the area of advancing disease. A spiral organism resembling Vincent's spirillum in conjunction with a fusiform bacillus is found in the normal monkey's mouth. Fusiform bacilli are frequently present in small numbers in the mouths of monkeys. The authors make no claim that the organisms present are the cause of this condition of noma, but call attention to the fact that their findings are similar to those reported in a corresponding condition in human beings by others.

117. Extrauterine Pregnancy.—Loeb and Hunter give experimental evidence to show that occlusion of the Fallopian

tube does not lead to tubal pregnancy in guinea-pigs. In extended experiments in which an ovum most probably entered the peritoneal cavity, abdominal pregnancy has never been found to occur. The conditions on which the development of an extrauterine pregnancy depends are discussed, and the observation is recorded that it is possible to produce experimental decidua at will without previous fertilization of the ovum. Data are presented indicating the effect of extra-abdominal and intra-abdominal operation on the development and course of pregnancy in animals. As a whole, it follows from these observations that the normal development of pregnancy in animals is interfered with in many cases by extra-abdominal as well as by intra-abdominal operations; furthermore, that the result depends to some degree on the period at which the operation has been performed. The normal development of or the interruption of pregnancy is, therefore, not suitable as an indicator of conditions which are supposed to have a specific influence on pregnancy. After a preceding copulation, transplantation of pieces of the uterus may lead to the formation of a decidua in the transplanted piece, but the development of an embryo could not be observed under such conditions.

Archives of Internal Medicine, Chicago

December

119 *Comparison of the von Pirquet, Schick and Moro Tuberculin Tests and Their Value in the Diagnosis of Tuberculosis. H. C. Carpenter and T. C. Hamill, New York.

120 *Acidosis and Associated Conditions (concluded). J. Ewing, New York.

119. Abstracted in THE JOURNAL, June 6, 1908, p. 1930.

120. Acidosis.—Ewing concludes his paper with a consideration of the physiologic chemistry of acetone compounds. He discusses the sources of acetone compounds, their relation to carbohydrates, fats and proteins, the intestinal origin of acetoneuria, the toxicity of acetone compounds and their relation to oxidation, and the physiology of lactic acid. He concludes with a consideration of the clinical types of acidosis—the acidosis of starvation, of pregnancy, cyclic vomiting, after anesthesia, and miscellaneous clinical types, namely in hysteria, cancer, psychosis, fever and that due to drugs. In concluding, he says that the work on acidosis reveals the exact nature and degree of a disturbance of metabolism which is of widespread occurrence and of prime significance in many diseases. To the physician it affords a means of diagnosis and an insight into the nature of the disease, otherwise likely to escape attention. To the pathologic anatomist it has disclosed the main factors in the pathogenesis of fatty degeneration. Read in terms of physiologic chemistry, acute degeneration of the liver becomes of first importance to the pathologist. In physiologic chemistry it shows that acidosis with the presence of acetone compounds usually results from abnormal metabolism of body or food fats, and to a less extent of protein, in which defective consumption of carbohydrates is an essential factor, and excessive excretion of ammonia a purely compensatory process. The therapeutic importance has possibly been overestimated. It seems time that the idea of a fatal abstraction of alkali in diabetic coma should give place to unbiased search for other factors in this disease, some of which may be affected by treatment. The study of acidosis shows clearly that the feeding of the healthy man as well as the diet of the sick can not be left to chance guided by appetite or ruled by tradition, but can be safely directed according to the laws of digestion and metabolism.

American Journal of Physiology, Boston

December

121 *Are the Anesthesia and Motor Paralysis Caused by Magnesium Salts Due to Asphyxia? S. J. Meltzer and J. Auer, New York.

122 *Diastases in the Blood and the Body Fluids. A. J. Carlson and A. B. Luckhardt, Chicago.

123 *Course of the Contraction Wave in the Stomach of the Rabbit. J. Auer, New York.

124 *Effect of Stimulation of the Accelerator Nerve on the Calcium, Potassium and Nitrogen Metabolism of the Isolated Heart. W. H. Howell and W. W. Duke, Baltimore.

125 Different Forms of Nitrogen in Proteins. T. R. Osborne, C. S. Leavenworth and C. A. Brautlecht, New Haven, Conn.

126 Effect of Salt Solutions on the Respiration, Heart Beat and Blood Pressure in the Skate. I. H. Hyde, Kansas City, Kans.

121. **Anesthesia and Motor Paralysis.**—In opposition to the objections of A. H. Ryan and C. C. Guthrie, that the anesthesia produced by magnesium salts is due to asphyxia, Meltzer and Auer show from their former papers and by new experiments that the magnesium salts paralyze respiration and produce anesthesia independently of asphyxia. The paralysis and anesthesia are not preceded by any stage of excitement, such as occurs in asphyxiated mammals, and no symptoms of asphyxia are exhibited if artificial respiration is maintained, although the animals are profoundly anesthetized.

122. **Diastases in the Blood and Body Fluids.**—Carlson and Luckhardt find the greatest prevalence of diastase in the blood serum. They find no constant difference in the concentration of the diastases in the portal and hepatic serum, nor does pancreatectomy affect the concentration of the blood and lymph diastase. Anesthesia appears to cause a slight decrease in the blood diastase. Neither a relative abundance of carbohydrates in the natural diet of a species, nor an increase of starchy foodstuffs in the diet, has any influence on the amount of diastase in the blood. All the facts so far at hand seem to point to the conclusion that the blood and lymph diastase are "discards" of the tissues in general. When once in the body fluids, these substances are in all probability on the road to destruction or elimination, and serve no further essential end in the body economy, at least so far as regards their starch-splitting power.

123. **Contraction of Stomach.**—Several observers have stated that the contraction wave of the stomach is simply peristaltic. On the other hand, early investigators, such as Beaumont, Hofmeister and Schutz, describe a wave which is peristaltic only so far as the antrum, where a marked constriction occurs and the antrum contracts as a whole, reaching its maximum after the antral sphincter has relaxed. According to Auer's observations on rabbits, which agree with those of other observers on dogs, the contraction wave of the stomach consists of two parts: The first wave begins near the esophagus and passes toward the pylorus, but skips a good portion of the preantral pouch. This is followed by a contraction of the antrum, which passes toward the preantral pouch, so as to cause considerable bulging. The antrum then relaxes slowly, and with this relaxation the preantrum sinks away, usually without any sign of peristalsis.

124. **Stimulation of the Accelerator Nerve.**—In a previous article (*Amer. Jour. Physiol.*, February, 1908; abstracted in *THE JOURNAL*, March 28, 1908, p. 1079), Howell and Duke showed that there is an output of potassium from the heart substance during vagus inhibition. In the same paper they suggested that during stimulation of accelerator nerve there may be an output of calcium sufficient to account for the augmentation and, perhaps, for the acceleration of the beat. They attempted to prove this by direct experiments on the perfused heart. The results of these experiments were entirely negative, no increase in calcium being shown. Attempts to determine the nature of the nitrogen metabolism of the heart indicate that no purin bodies are produced by its activity. The heart appears to give off creatinin (or creatin) to the circulating liquid, and it will be interesting to determine how far this elimination is associated with functional activity.

Northwest Medicine, Seattle, Wash.

December

- 127 *Diagnostic and Prognostic Value of the Leucocyte Count in Surgical Diseases. J. E. Else, Pullman, Wash.
128 *Formation of Correct Habits, as a Factor in Treatment of Pulmonary Tuberculosis. E. A. Pierce, Portland, Ore.
129 Therapeutic Application of Bacterial Vaccines in Localized Tuberculosis and Some Other Bacterial Diseases. R. C. Matson, Portland, Ore.

127. **Leucocyte Count.**—Else discusses the literature, describes the technic, and concludes that the leucocyte count is one of the most accurate and sensitive indications to the patient's condition, and, in the presence of an infection, should not be overlooked any more than taking the temperature. The differential as well as the total count should always be made. Leucocytosis indicates absorbed pus, not retained pus. Other things being equal: (a) a low leucocyte count with a

slight increase in the percentage of polynuclear cells offers a very favorable prognosis; (b) a low leucocyte count with a high percentage of polynuclear cells offers a very unfavorable prognosis; (c) a high leucocyte count with a high percentage of polynuclear cells offers a grave prognosis; (d) a high leucocyte count with a low percentage of polynuclear cells offers a favorable prognosis; (e) a rising leucocyte count indicates that the prognosis is increasing in gravity, especially if the percentage of polynuclear cells is high or increasing; (f) a falling leucocytosis with a high stationary or rising percentage of polynuclear leucocytes offers a grave prognosis, increasing in gravity; (g) a falling leucocytosis with a slight increase or a falling percentage of polynuclear cells indicates an improving prognosis. The total leucocyte count indicates the severity of the battle that is taking place between the resisting powers of the patient and the infection. The degree of increase in the polynuclear leucocyte percentage indicates the amount of toxin absorbed, as compared with the resistance of the patient.

128. **Correct Habits in Pulmonary Tuberculosis.**—Pearce urges the importance of forming correct habits in regard to rest, especially on occurrence of hemorrhage, avoidance of coughing, digestion, sleep, exercise, tobacco, expectoration, alcohol, sexual desire, wearing of beards, kissing, coughing, excitement, the sputum, bathing, discussion of the case, clothing, the drug habit, temperature record and use of the voice.

Journal of Cutaneous Diseases, New York

December

- 130 Keratosis Follicularis Resulting in Multiple Epithelioma: Report of a Case. G. W. Wende, Buffalo.
131 Xanthoma Diabeticorum and Lipoma Multiplex and Xanthoma Approaching the Diabetic Type with Diabetes Insipidus. W. A. Pusey and O. P. Johnstone, Chicago.
132 Case of Nævus Unius Lateris. A. Schalek, Omaha, Neb.
133 Pemphigus and Bullous Dermatoses. J. MacF. Windfeld, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 2

- 1 *Why and How the Surgeon Should Attempt to Preserve the Appendix. C. B. Keetley.
2 Renal Calculus, Diagnosis and Treatment. D. Newman.
3 *Absorption of Proteins. W. D. Halliburton.
4 *Treatment of Inguinal Hernia in Children. W. H. Evans.
5 Acromegaly, with Illustrative Cases. G. Rankin, and R. O. Moon.
6 Features of Some Chronic Affections of the Lungs in Children. T. Fisher.
7 *Prospective Cure for Elephantiasis. W. S. Handley.

1. **Preservation of the Appendix.**—Keetley endeavors to show: 1, That transplantation of the appendix, so that the whole or greater part of it from its root in the cecum lies permanently imbedded in the abdominal wall, will produce the good results of excising it; 2, that it is a practical and safe operation; and 3, that transplantation of the appendix in many cases should be preferred to appendicectomy; also that, when constipation requires to be treated surgically, appendicostomy should be the operation chosen. He reports cases and draws from them inferences as to the value of appendicostomy for various purposes, and adds some cases of cecostomy in which that operation had to be substituted because the appendix had either been removed or was impervious.

3. **Absorption of Proteins.**—Halliburton gives his reasons for his change of views on the absorption of proteins, to which Pavy called critical attention in the *Lancet*, Nov. 28, 1908 (abstracted in *THE JOURNAL*, December 26, p. 2235).

4. **Inguinal Hernia in Children.**—Evans sums up his experience as follows: First, attempts may be made during the first year by the careful application of a truss to induce an obliteration of the funicular process. But these attempts should not be continued beyond the end of the first year unless some condition is present which renders an operation undesirable, while, on the other hand, it may be necessary to operate at even an earlier age if the hernia can not be satis-

factorily restrained by a truss. Second, a simple removal of the sac, if thoroughly carried out, is all that is needed to prevent a recurrence of the hernia in children.

7. **Elephantiasis.**—Handley reports an extension of the operation of lymphangioplasty, formerly reported by him as successful in relieving the "brawny arm" of breast cancer, to the treatment of elephantiasis arabum.

British Medical Journal, London

January 2

- 9 *Results of Operations for Carcinoma of the Tongue. H. T. Butlin.
10 *Operative Treatment of Intraoral Cancer. C. P. Childe.
11 *Surgery of Colitis. F. C. Wallis.
12 Treatment of Chronic Rheumatic and Rheumatoid Arthritis by Radiant Heat and Cataphoresis. C. F. Ballely.
13 Restoration of Vision in the Squinting Eye. A. A. Bradburne.
14 Persistent Thymus and Sudden Death. S. H. Daukes.

9. **Carcinoma of the Tongue.**—Butlin analyzes the results of his operations for carcinoma of the tongue in 197 cases. Among the inferences are the following: There are no advantages in postponing the operation on the glands until they are enlarged. The removal of the contents of the anterior triangle is hardly sufficient as a routine procedure, and he advises that the dissection be carried into the posterior triangle, and to the glands in the parotid region, removing even the lower part of the parotid salivary gland if necessary. His notes are insufficient to decide the necessity of removing the glands on both sides of the neck. A wider removal of the glands, however, appears necessary, in the following cases: 1. Those cases in which the glands on both sides of the neck are enlarged. 2. Those cases in which the glands are affected only on the side of the neck opposite the disease. 3. Those cases in which the disease is seated on both sides of the tongue, or in which it reaches to the middle line of the tongue. 4. Probably it ought to be done in those cases in which microscopic examination gives reason to believe that, although the primary disease is apparently only of small extent and depth, it is much more malignant than usual; when, for instance, columns of cancer cells are found running deeply down between the muscular fibers. Butlin's figures do not support Cheatle's suggestion as to the removal of the muscles in every case of cancer of one-half the tongue, but he thinks it desirable to carry it into effect in more advanced cases, especially when the disease lies beneath the tongue in the floor of the mouth. The objections are impairment of speech and of mastication. He does not consider the evidence in favor of removing the tissues between the primary disease and the glands strong enough, to justify the extra risk involved. The anterior part of the dorsum appears to be the least dangerous seat of cancer in relation to affection of the glands. In opposition to the general impression among surgeons, Butlin thinks that it may fairly be assumed that cancer originating in the floor of the mouth can be removed with a good prospect of success, provided it is not very extensive and has not involved the bone. As to recurrent disease, the results of operation for its removal, whether of the tongue or glands, have been so bad that operators are counselled to make the first operation as complete as possible, in the belief that the only hope of the patient lies in the thorough manner in which this operation is performed.

10. **Intraoral Cancer.**—Childe sums up the two main principles that he advocates in the operative treatment of cancer of tongue and floor of mouth as follows: The neck should always be attacked first, with ligature of the lingual and facial arteries on one or both sides. This maneuver reduces the excision of the primary growth, provided that it can be extirpated without division of the jaw, to an insignificant and bloodless operation, which can be frequently performed without danger immediately after the neck operation. It enables the primary growth to be removed with greater precision. It does away with all necessity for preliminary laryngotomy or tracheotomy. It cuts off the blood supply to the tumor in the interval, if the operation has to be divided into two stages. It will possibly starve cancer cells which may be left behind after attempted extirpation of the disease. In his experience it is the key to the operation. A communication be-

tween the mouth and a large wound in the neck should always be avoided when possible. Unless the disease be situated in the tonsil or its neighborhood, and except the patient insist on a single operation, this can always be accomplished by dividing the operation into two stages in those cases in which, for the satisfactory removal of the disease, the lower jaw requires division. The neck, as before, is attacked first, and the lingual and facial arteries are tied. In a fortnight, the large wound in the neck is healed, the jaw is divided and the primary growth is excised, as before, bloodlessly. In conclusion, as regards final results, early diagnosis is the only hope. With this view, the therapeutic test of cancer by iodid of potassium should be relegated to the limbo of dangerous playthings. Immediate microscopic examination of a piece of the growth should be the only test, and the therapeutic test should never be employed unless the microscopic report is doubtful. It should then be pushed rapidly, and its effects not watched too long.

11. **Colitis.**—Wallis discusses acute and chronic colitis, classifying the latter into mucous, membranous, ulcerative and hemorrhagic colitis. The methods of surgical treatment at present used are appendicostomy, cecostomy, colostomy, and median posterior proctotomy, to which must be added cataphoresis. He discusses each of these and concludes that the sooner all forms of hemorrhagic or ulcerative colitis are submitted to surgical treatment, of which the best is the irrigation of the bowel through the surgical opening, the better. The aim is to get the colon free of infective contents. Chemical applications must be used with caution. The best treatment for ulcerative areas is cataphoresis. Of vaccines, Wallis' experience is insufficient to draw conclusions from. We can not yet arrive at definite conclusions as to surgical procedure in membranous colitis. He insists on the great importance of early examination by the sigmoidoscope.

Medical Press and Circular, London

December 30

- 15 *Rheumatoid Arthritis and Its Treatment. W. Murrell.
16 Diagnosis and Treatment of Breast Cancer. R. Morison.
17 Some Desirable Additions to the British Pharmacopoeia. J. C. McWalter.
18 Compensation for Injuries and Payment for First Aid. G. Crichton.

15. **Rheumatoid Arthritis.**—Murrell considers this condition under the four following heads: 1. The chronic arthritis of middle-aged women. 2. Acute rheumatoid arthritis. 3. Senile osteoarthritis. 4. Various forms of the disease in children. The prognosis in most forms of rheumatoid arthritis is unfavorable with regard to the prospect of cure. Medicinally, the iodids internally, in large doses quite apart from any syphilitic taint, are useful, as is also arsenic, which, however, is slow acting and must be continued for weeks or months. Locally, persistent application of iodin is serviceable; warm baths and hot and cold salt douches may alleviate. Mechanical or electric vibration has proved useful. Residence during the winter in a hot, dry bracing climate has been followed by arrest of the disease. In hospital cases Murrell has recently used a serum which has acted admirably. Details of its preparation are given in his article on "Serum Therapy" in the *Encyclopedia Medica*, Vol. xii, 1902. He reports a noteworthy case benefited by this treatment.

Clinical Journal, London

December 30

- 19 Neurasthenia in Women. G. E. Herman.
20 How Cancer Patients Die. J. Bland-Sutton.
21 *Tubercle and Underwear. L. Williams.

21. **Tubercle and Underwear.**—Williams protests against the use of flannel or wool underwear, and says that of the two properties essential to wholesome underwear—warmth and the power of absorption—flannel possesses only warmth, while a high degree of absorptive power is hygienically the more important. The excrementitious moisture from the skin in those who wear flannel can not escape and lies imprisoned between the garment and the skin, thus rendering this layer impure and preventing cutaneous respiration. The tuberculous poison is a powerful vasodilator, so that the wearing of

flannel imitates closely the results which the bacillus itself affects, results presumably most advantageous to its development. Moreover, vasodilatation means low blood pressure, and this means physical latitude and mental lethargy. It is as important to supply abundant fresh air to the cutaneous respiration as to the pulmonary. To struggle against tuberculosis, the skin should be trained by cold bathing and exposure to other cold influences to perform adequately its contractile duties. Hot houses must be avoided, underclothing should be warm, absorbent and ventilated. Linen, cotton and silk undergarments can be made to imprison air in their meshes and are just as warm as flannel, and superior in absorptive and ventilating properties.

Bristol Medico-Chirurgical Journal

December

- 22 *Recent Work on Leukemia, and Some Allied Affections. J. M. Clarke.
- 23 *Causation of Certain Mid-diastolic Murmurs. C. Coombs.
- 24 Dilatation of Posterior Cerebral Vessels with Basal Hemorrhage in a Girl Aged 16. T. M. Carter.
- 25 A Medical Naval Volunteer on Duty at Quebec, July, 1908. W. K. Wills.

22. Leukemia.—Clarke says that a decisive answer to the question of the relation of leukemia to sarcoma can not be given with our present knowledge, and that at present it is extremely difficult to state where lymphatic hyperplasia ends and tumor begins; but the very fact of the indefinite number of gradations which are found between the cases at the two ends of the scale affords an additional argument against regarding leukemia as a sarcoma.

23. Mid-diastolic Murmurs.—Coombs summarizes his paper as follows:

In aortic regurgitation, early rheumatic carditis, and adherent pericardium, diastolic murmurs are heard at the mitral area.

In their principal features these murmurs are so much alike as to suggest a common mode of production.

Autopsy shows that in all three diseases such murmurs may occur without valvular mitral stenosis being present.

Probably in such cases the bruit is due to vibration in the blood sucked by ventricular diastole into an enlarged ventricle, through a mitral orifice not so much enlarged.

Dublin Journal of Medical Science

December

- 26 History of Medicine in Ireland. T. G. Moorhead.
- 27 *Old Documents in Medical Educational Practice. J. J. Walsh

27. Old Documents on Medical Educational Practice.—Walsh reviews the evolution of legislation regulating medical practice and quotes the Bull of Pope John XXII (A. D. 1321) founding the medical school of Perugia, as well as the law of Frederick II regulating medical practice in the Sicilies, which last was published in THE JOURNAL, Feb. 1, 1908, p. 388.

Indian Medical Gazette, Calcutta

November

- 28 Recent Epidemic of Phagedenic Ulcers in Assam, with Remarks on a Bacillus Present in the Sores. R. L. Patterson.
- 29 Twenty Years of Puerperal Eclampsia at the Government Maternity Hospital, Madras. G. G. Giffard.
- 30 Gleanings from the Calcutta Postmortem Records. L. Rogers.
- 31 Pyorrhea Alveolaris; from a Tropical Standpoint. C. F. Badcock.

Intercolonial Medical Journal of Australasia, Melbourne

November

- 32 An Epidemic of 135 Cases of Acute Anterior Poliomyelitis Occurring in Victoria. H. D. Stephens.
- 33 Serodiagnosis of Syphilis. K. Miller.
- 34 Action of X-Rays on the Skin. F. J. Clendinnen.
- 35 Treatment of Stammering, with Special Relation to Respiratory Exercises. T. G. Leary.
- 36 Treatment of the Insane in Private Practice in Victoria. W. Beattie-Smith.

Annales de Dermatologie et de Syphiligraphie, Paris

November, IX, No. 11, pp. 609-672

- 37 Faviform Trichophyton-Fungi. R. Sabouraud.
- 38 Comparative Histopathology of the Skin. (Notes sur l'histopathologie comparée de la peau: tumeurs, folliculites à Demodex, botryomycose, etc.) C. Audrey and F. Sufran.

Annales de Gynécologie et d'Obstétrique, Paris

December, XI, No. 5, pp. 705-763

- 39 Racemose Ovarian Cysts (Kystes racémeux de l'ovaire.) Le Jemtel.

Annales de l'Institut Pasteur, Paris

November 25, XXII, No. 11, pp. 833-923

- 40 Trypanosoma Congolense. A. Laveran.
- 41 Strains of Trypanosomes Resistant to Drugs. (Propriétés des races de Trypanosomes résistants aux médicaments.) F. Mesnil and E. Brimont.
- 42 Ankylostomiasis and Beriberi in Cochin China. F. Noc.
- 43 Significance of Colon Bacillus in Drinking Water. (Etude du Bacillus coli dans les eaux de Toulouse.) Guiraud and H. Maudoul.
- 44 New Form of Diplococcus. (Tetradiplococcus allformans "Lodzensis.") S. Bartoszewicz.

Presse Médicale, Paris

December 19, XVI, No. 102, pp. 817-832

- 45 *Care and Future of the Prematurely Born. (Le prématuré.) C. Maygrier.
- 46 Diagnosis and Treatment by Bronchoesophagoscopy of Certain Rare Intrathoracic Affections. Guisez.
- 47 Sexual Continence and Arteriosclerosis. P. Remlinger.
- 48 Gymnastic Exercises of the Ankle. (Gymnastique du cou-de-pied.) P. Desfosses.
- 49 Perforating Ulcer of the Foot, of Tuberculous Origin. (Mal perforant plantaire d'origine tuberculeuse.) L. Arnaud.

December 23, No. 103, pp. 833-840

- 50 Immunization Against Tuberculosis by the Digestive Route. A. Calmette.
- 51 Local Treatment of Skin Affections. (Le pansement de jour en dermatologie.) L. M. Pautrier.

45. Prematurely Born Children.—Maygrier warns against three great dangers that confront the prematurely born, chilling, defective feeding and infections. If infections can be warded off and the child fed with breast milk, even if it is drawn and fed with a spoon, a drop at a time, it is liable to grow up healthy and strong after it has been tided past the stage of extra helplessness. In his own and Budin's experience fully 90 per cent. have lived of the children born between the end of the sixth and eighth months.

Semaine Médicale, Paris

December 23, XXVIII, No. 52, pp. 613-620

- 52 Is the Jewish Race Immune to Alcoholism? (La race juive jouit-elle d'une immunité à l'égard de l'alcoolisme?) L. Cheinisse.
- 53 *Curability of Certain Cases of Tabetic Amyotrophy. (Comme quoi certaines amyotrophies du tabes reconnaissent une origine syphilitique.) J. Lhermitte.

53. Connection of Tabetic Amyotrophy with Syphilis.—Lhermitte concludes from a review of recent research that atrophy of the muscles occurs in about 20 per cent. of all cases of tabes, but that it may be the result of two separate processes. Besides the amyotrophy secondary to the true tabetic lesions of the spinal or cranial nerves, there may be amyotrophy due to progressive destruction of the motor cells of the gray matter in the spinal cord and medulla oblongata. In the latter case the process is independent of the tabes, and is merely the work of the same syphilitic virus causing the tabes and the sclerosis of the posterior cords. This has great practical importance, as it shows that the amyotrophy in these conditions may be arrested and possibly cured by specific treatment.

Archiv für Gynaekologie, Berlin

LXXXVII, No. 1, pp. 1-231. Last indexed Dec. 19, p. 2192

- 54 Cystic Formations in Abdominal Cavity. (Zur Kenntnis seltener cystischer Bildungen in der Bauchhöhle.) K. Himmelheber.
- 55 *Eclampsia. (Zur Klinik, Statistik und Therapie der Eklampsie.) L. Seitz.
- 56 Tuberculosis in Pregnant Women. (Zur Tuberkulose in der Schwangerschaft.) A. Rielländer and K. Mayer.
- 57 *Metastasis of Uterine Carcinoma in Organs with an Internal Secretion. H. Oeffergeld.
- 58 Twins with Excess of Amniotic Fluid for One and Lack of It for the Other. (Fall von einseitiger . . . anderseitiger Oligohydramnie bei . . .)
- 59 Influence of Syphilis on the Offspring. (Einfluss der Syphilis auf die Nachkommenschaft.) Gräfenberg.
- 60 Primary Carcinoma in the Fallopian Tube. W. Beuthlin.

55. Eclampsia.—Seitz writes from Döderlein's clinic at Munich to expatiate on the advantages of prompt delivery in the treatment of eclampsia. He reviews the experiences from fifteen different clinics to show that in 50 per cent. of all the cases the convulsions ceased after delivery. The proportion was about the same for the operative and the spontaneous births. The number of convulsions is no criterion for the

severity of the eclamptic intoxication. The reduced mortality shows the effects of treatment by prompt delivery. The mortality was 20.2 per cent. in 512 cases of spontaneous delivery and 24 per cent. in 982 cases in which version, the forceps or other operative intervention had been required. Omitting Schauta's 132 cases from these figures, as dating from before the eighties, the mortality is only 22 per cent. Early and rapid delivery is thus shown to be the best method of treating eclampsia. Outside of institutions, the general practitioner may dilate the cervix if necessary by traction on the inflatable bag or, by sacrificing the child, by traction on the leg after version.

57. **Metastasis of Uterine Carcinoma in Organs with Internal Secretion.**—Offergeld discusses the metastasis in the thyroid, suprarenals and kidneys, the latter more frequent than the others, although all are very rare. The causes for the rarity of the metastasis in these organs are the specific albuminoid bodies in them and their special metabolism. Metastasis can not occur in these organs, he says, until after the loss of the neutralizing and ferment functions of the liver.

Archiv für klinische Chirurgie, Berlin

LXXXVIII, No. 1, pp. 1-318. Last indexed Dec. 12, p. 2094.

- 61 Chronic Inflammatory Tumors in Abdominal Wall After Operations for Hernia. (Chronisch entzündliche Bauchdeckentumoren nach Hernienoperationen.) H. Schloffer.
- 62 Experimental Study of Histologic and Clinical Laws to which Plastic Operations on Bones Must Conform. (Gesetze der freien Osteoplastik auf Grund von Thiersversuchen.) G. Axhausen.
- 63 *Pain in the Heel: Pathology of the Calcaneus and Achilles Tendon. (Ueber Fersenschmerzen.) H. Jacobsthal.
- 64 Prosthesis for Gunshot Damage to Lower Jaw. (Prothetische Nachbehandlung der Unterkieferschussverletzungen.) T. Hashimoto and others.
- 65 *Operative and Ultimate Results in Cancer of the Stomach. (Operations- und Dauererfolge beim malignen Geschwulstbildung des Magens.) F. Goldschwend.
- 66 *Amputation Aiming for Functional Utilization of All the Forces Left. (Amputatio humeri osteoplastica et anti-brachil tenoplastica.) J. Elgart.
- 67 Fibroepithelial Changes in Breast. (Fibroepitheliale Veränderungen der Brustdrüse.) P. Thelle.
- 68 Etiology of Congenital Atresia of Intestine and Esophagus. Kreuter.
- 69 Congenital Sacral Tumor of Tissue Belonging to Central Nervous System. (Ein aus Centralnervengewebe bestehender Tumor sacralis congenitus.) H. Scheuermann.

63. **Pain in the Heel.**—Jacobsthal reports 42 cases of various affections of the Achilles tendon or calcaneus causing pain, and discusses the diagnosis and treatment. The trouble was traumatic inflammation of the Achilles tendon, crushing, partial rupture, ossification, fibroma or inflammation in the environment in 16 cases, and in the others the calcaneus was involved, either exostosis, or an affection of the epiphysis, a spur on the calcaneus or the effects of contusion or else the diagnosis was still wavering. This experience shows the multiplicity of the causes that may induce chronic pain in the heel. In 13 cases there was also pain in the sole, and in 6 of these a spur was discovered.

65. **Cancer of the Stomach.**—Goldschwend reports the experiences with operative treatment of malignant tumors in the stomach at Brenner's clinic at Linz. A total of 60 radical operations for cancer were done and 179 palliative operations, with 155 operations for non-malignant affections.

66. **Amputation Aiming to Utilize the Functional Forces Left.**—Elgart aims to adapt the amputation to utilize all the functional forces still available in the stump, and he gives an illustrated description of an artificial hand and forearm constructed on these principles. The patient wearing it is able to flex his hand normally, bend and flex the elbow and fingers, the movements being very much like the normal types, while the construction of the prosthesis is very simple and the whole appliance is very light. The main point is to modify the technic of the amputation to give a firm hold for the various parts of the prosthetic appliance.

Beiträge zur klinische Chirurgie, Tübingen

November, LX, No. 3, pp. 431-825

- 70 Transplantation of Thyroid by Suture of the Vessels. (Transplantation der Schilddrüse mittels Gefäßnaht.) R. Stich and M. Makkas.
- 71 Importance of Mediastinal Emphysema in Pathology of Pneumothorax. (Beitrag zur Kenntnis der Lungenverletzungen nach Brustwandkontusionen.) F. Sauerbruch.

- 72 *Operations in Posterior Cranial Fossa. (Operationen in der hinteren Schädelgrube.) B. Baisch.
- 73 Experimental Research on Transplantation of Small Intestine. (Dünndarmtransplantation an den Ort der Wahl.) P. Esau.
- 74 Surgery and Pathology of Cholelithiasis. H. Rimmann.
- 75 Treatment of Diffuse Suppurative Peritonitis. N. Guleke.
- 76 Results of Treatment of Fractures of Leg with Zupplinger's Automatic Extension Apparatus. A. Weiststein.
- 77 Prosthesis of Lower Jaw. (Prothesenbehandlung nach Resektion und Exartikulation des Unterkiefers.) C. Kohlen-Baranown.
- 78 Resection of Lisfranc's Joint in Treatment of Talipes Curvus. (Resektion des Lisfranc'schen Gelenkes zur Therapie des Hohlfußes.) A. Hoffmann.
- 79 Colloid Cancer of the Breast. (Der Gallertkrebs der Brustdrüse.) G. Ganbe.
- 80 Operative Treatment of Excessive Growth of Lower Lip. (Fall von Makrochelle.) W. Wolf.
- 81 Treatment of Streptococcus Sepsis. O. Elsässer.

72. **Operations in the Posterior Cranial Fossa.**—Baisch describes two cases in which great improvement followed removal of a cyst in the cerebellum. The patients were 16 and 47 years old, respectively. In a third case the patient succumbed soon after the operation. In a fourth case a tumor in the cerebello-pontine angle, of traumatic origin, was removed with great improvement. In another case the assumed tumor was not found and the patient succumbed to hemorrhage in the subdural space, for which the operation was evidently responsible. The cases with favorable outcome are constantly increasing in number and the results growing better as the lesion is differentiated in time and removed before the optic nerve is irreparably injured.

Berliner klinische Wochenschrift

December 14, XLV, No. 50, pp. 2213-2256

- 82 Madelung's Deformity of the Wrist. (Ueber Madelung'sche Handgelenksdeformität.) R. Levy.
- 83 *Successful Treatment of Cysticercus and Echinococcus with Male Fern. (Behandlung des Cysticercus und Echinococcus mit Extract. fillets mar. aether.) de Renzi.
- 84 Toxic Action of Subcutaneous Saline Infusion and How to Prevent It. (Giftwirkung und Entgiftung des Kochsalzes bei subkutaner Infusion.) L. F. Meyer.
- 85 Thyrogenic Destruction of Albumin. (Zum thyrogenen Eiweißzerfall.) K. Mayer.
- 86 Hysterie Fever. F. Möhren.
- 87 Present Status of Intravenous Therapy. F. Mendel. Commenced in No. 49.

83. **Treatment of Inaccessible Echinococcus and Cysticercus Infection with Male Fern.**—In case the lesions are beyond the reach of the surgeon, de Renzi has found that it is possible to influence them by administering extract of male fern. In the four cases in which he has applied this treatment the lesions were in the liver, lung or brain, and all the symptoms rapidly subsided under the influence of this medication. Among the effects testifying to the beneficial action of the drug was the invariable subsidence of the previous high eosinophilia, showing that there is an interchange of certain substances between the host and the parasites. In two cases the eosinophilia dropped from 9 and 8 to 1 per cent. The patients were all adults.

Deutsches Archiv für klinische Medizin, Leipsic

XCIV, Nos. 5-6, pp. 441-608. Last indexed Dec. 12, p. 2096

- 88 Measurement of Blood Pressure by von Recklinghausen and Korotkoff's Technics. (Zur Methodik der Blutdruckmessung.) G. Lang and S. Manswetowa.
- 89 Changes in Arterial Pressure in Heart Disease with Falling Compensation. (Zur Frage der Veränderung des arteriellen Blutdrucks bei Herzkranken während der Kompensationsstörung.) Id.
- 90 Percussion of Absolute Cardiac Dulness and Its Importance for Determination of Size of Heart. (Perkussion der absoluten Herzdämpfung und deren Wert für die Bestimmung der Herzgrösse.) Schieffer and A. Weber.
- 91 *Percussion. Goldscheider.
- 92 Supply of Oxygen in the Anemic. (Sauerstoffversorgung bei Anämien.) P. Morawitz and W. Röhmer.
- 93 Experimental Research on Behavior of Leucocytes After Injection of Extracts of Bacteria. (Verhalten der Leucocyten nach Injektion von Bakterienextrakten.) F. Lange.
- 94 Scleroderma and Addison's Disease. (Fall von Sclerodermie und Morbus Addisoni nebst Bemerkungen über die Physiologie und Pathologie des Sympathicus und der Nebennieren.) L. Lichtwitz.
- 95 Clinical Reliability of Comparative Opsonin Tests in Fresh and Twenty-four-hour Old Serum. J. Zeissler.
- 96 *Early Diagnosis of Pulmonary Tuberculosis by Examination of Stomach Content. T. Hausmann.

91. **Threshold Percussion.**—Goldscheider answers the objections that have been raised against his method of "threshold

value percussion," that is, percussion at the limit of audibility, and then describes its field of application and the technic to the minutest details, with illustrations, as also the physics of the mechanism involved. He shows that this technic not only affords unusually fine conditions for obtaining information but that it also produces conditions otherwise unattainable and especially favorable for clinical investigation. The divergent waves become imperceptible and with the threshold technic only the axial waves are perceived. It is percussion in its purest form.

96. **Early Diagnosis of Pulmonary Tuberculosis from Stomach Contents.**—Hausmann says that for years he has been in the habit of examining the apices of every patient who applies for any ailment, and that he has been surprised at the frequency with which he found a pathologic condition in persons who had applied for relief merely on account of some dyspeptic trouble. He always informs the patient of what he has found, but with the assurance that the apical lesion is readily curable at this early stage. Some of the patients apply to other physicians for confirmation of the diagnosis, and in many instances the other physician denied the correctness of the diagnosis. There was no appreciable expectoration in these incipient cases, but examination of the fasting stomach content before breakfast showed the presence of sputum unconsciously swallowed—with tubercle bacilli—and thus confirmed the diagnosis of an apical lesion and also disclosed that it was "open." The lack of expectoration, therefore, is no evidence that the apical lesion is still "closed," as otherwise might be accepted. He urges others to examine the fasting stomach content for the presence of sputum, believing that the number of cases of so-called latent tuberculosis will be found materially reduced when this is systematically done. He adds in conclusion that every general practitioner and specialist in gastrointestinal affections should make a special point of examining the apices in every patient, and thus be able to refer the patients to the lung specialist while the affection in the lungs is still in its most promising stage for complete recovery. As it is, the lung specialist never sees the patient until the lung symptoms have attracted attention and then the most promising stage is already past. By examining the fasting stomach content the differences of opinion between diagnosticians will be settled as also the question whether the patient is completely cured or not. It will also give the lung specialists more confidence in the diagnoses of the non-specialists.

Deutsche medizinische Wochenschrift, Berlin

December 17, XXXIV, No. 51, pp. 2201-2248

- 97 Origin of Emphysema. (Zur Frage nach der Entstehung der Lungenblähung.) L. Hofbauer.
- 98 Paralysis of Left Atrium with Mitral Defects. (Lähmung des linken Vorhofes bei Mitralfehlern.) G. Joachim.
- 99 *Treatment of Acute Articular Rheumatism. (Behandlung des akuten Gelenkrheumatismus.) A. Plehn. Concluded in No. 52.
- 100 Increased Secretion and Acidity of Gastric Juice During Menstruation. (Steigerung der Sekretion und der Azidität des Magensaftes während der Menstruation.) I. M. Wolpe.
- 101 Importance of Spring Fixation in Treatment of Clubfoot. (Bedeutung des federnden Fixationsverbandes in der Klumpfußbehandlung.) J. Fränkel.
- 102 Bacterial Origin and Clinical Study of Brain Abscess. (Hirnabszesse.) Heyde.
- 103 Combined Apparatus for Lumbar Puncture, Injection and Measurement of Pressure. W. Kausch.
- 104 Experiences with Spinal Anesthesia. (Erfahrungen auf dem Gebiete der Medullarästhesie.) W. Tomaschewski.
- 105 Nomenclature of Epithelial Mouse Tumors. H. Apolant.
- 106 *Simple Method for Drawing Breast Milk. (Einfaches Verfahren zum Absaugen der Muttermilch.) V. Bock.

December 24, No. 52, pp. 2249-2296

- 107 Treatment of Heart Disease with Oscillating Currents. (Behandlung der Herzkrankheiten mit oszillierenden Strömen.) T. Rumpf.
- 108 Multiple Subcutaneous Electrolysis, Method for Destruction of Hairs without Leaving Traces. (Multiple subkutane Elektrolyse, ein narbenloses Zerstörungsverfahren.) Kromayer.
- 109 Treatment with Radium Emanations. A. Fuerstenberg.
- 110 Simple Mask for Inhalation. (Einfache Inhalationsmaske.) A. Hartmann.
- 111 *Test of Tuberculin Immunity on New Principle. (Neue Method zur Prüfung der Tuberkulinimmunität.) M. Pickert and E. Löwenstein.
- 112 Alleged Bacteriolytic Property of Lecithin. (Ueber die angebliche bakteriolytische Eigenschaft des Lecithins und über die Immunisierung mittels Lecithin-Typhustoxine.) J. G. Sleswyk.

- 113 Immunizing Action of Lecithin Extracts of Plague Bacilli. F. Vay.
- 114 Elimination of Atoxyl in Urine. (Nachweis und den Gang der Ausscheidung des Atoxyls im Harn.) F. Blumenthal.
- 115 The Appetite. W. Sternberg.
- 116 Treatment of Wounds with Plaster of Paris. (Wundbehandlung mit Gips.) W. Pust.

99. **Treatment of Acute Articular Rheumatism.**—Plehn says that brief transient albuminuria is a frequent accompaniment of various untreated infections, but this transient catarrh of the urinary apparatus is of no more moment than the transient catarrh of the stomach which occurs almost regularly after large doses of quinin, etc. The salicylates should not be held responsible for it. He ascribes a specific action to salicylic acid in articular rheumatism as marked as the action of quinin in malaria and mercury in syphilis. But in order to obtain the desired result it must be given in sufficient dosage. The half-hearted dosage now customary leaves the door open for all kinds of complications which proper salicylic medication would effectually avert. The method which has been applied in his service for years is to give his patient, as soon as the heart and urine have been examined, 1 gm. (15 grains) of salicylic acid in powder form, repeating every two hours, or half this amount every hour, so that the patient takes 6 gm. (75 grains) each day, suspending at night. This is continued until the temperature has been normal for three days and all pains and other disturbances have disappeared. He then gives 4 gm. (60 grains) a day for a week, and the patient is kept in bed for three days longer without any drugs. The aching joints are dressed with dry cotton and placed on cushions as comfortably as possible. This method of treatment is applied in every case, irrespective of the severity, as he regards it as the minimum necessary to cut the disease short and to ward off complications. Only when the by-effects are too severe does he modify it and this modification generally avenges itself. Women do not tolerate the acid as well as men, and consequently he reduces the dosage to 5 and 3 gm. in their case. As a rule the dosage should correspond to about 0.08 gm. to the kilogram of weight. The dose is sometimes rejected by the stomach and has to be reduced on this account, but the appetite returned as soon as the fever and pains subsided, or even earlier, and the patients almost invariably gained in weight. The drug is never given on an empty stomach. Existing acute or chronic nephritis was always favorably influenced by this treatment. In 319 cases with the heart intact valvular trouble developed only in 2 cases and in these the method had not been strictly applied. In contrast to these, heart trouble developed in 36 out of 101 cases of recurring rheumatism in which the first attack had been treated elsewhere with the customary smaller dosage. He is convinced that his method of early, vigorous and long continued salicylic treatment saves the patient from complications on the part of the heart and pleura, while it has a direct curative action on incipient serous pericarditis and pure rheumatic affections of the myocardium. Salicylic acid in doses up to 8 gm. a day, even long continued, he asserts, has no toxic action on the heart. It can be given without fear in case of compensated valvular defects and old fibrous myocarditis. In the extremely rare cases refractory to salicylic medication, the disease may yield to intramuscular injection of quinin with antipyrin, or to intravenous injection of colloidal silver. Baths and packs may re-enforce the drugs, but can never take their place.

106. **Simple Method of Drawing Breast Milk.**—A wide-mouthed bottle is filled with boiling water. The water is then poured out, and the mouth of the bottle is cooled and applied over the nipple. As the bottle cools the milk spurts from the nipple and the breast is automatically emptied, while the milk is ready for use at once, keeping warm in the warm bottle.

111. **New Test for Immunity to Tuberculin.**—Pickert and Löwenstein have found that the tuberculin cutaneous reaction can be prevented if the tuberculin is mixed beforehand with serum from a tuberculous individual taking tuberculin treatment. Normal serum has none of this neutralizing power. Under the influence of tuberculin treatment this neutralizing property appears earlier and is more pronounced in the cases

with a favorable prognosis. Tests on 104 persons confirmed the constancy of this neutralizing property of the specific serum on the specific reaction to cutaneous inoculation of tuberculin.

Deutsche Zeitschrift für Chirurgie, Leipsic

November, XCV. No. 6, pp. 561-644

- 117 *Serum Treatment of Anthrax. (Serumbehandlung des Milzbrandes beim Menschen.) A. Læwen.
118 *Circular Suture of Vessels After Removing Aneurism at the Knee. (Beitrag zur zirkulären Gefäßnaht am Menschen.) R. Stieh.
119 Experimental Research on Collateral Renal Circulation. (Zur Frage des Kollateralkreislaufs der Niere.) H. Flörcken.
120 *Surgical Treatment of Gastric Ulcer and Its Consequences. (Chirurgische Behandlung des Magengeschwürs und seiner Folgezustände.) H. Ito and Y. Soyeshima.
121 *Treatment of Hypertrophy of the Prostate by Injection of Alien Blood. (Behandlung der Prostatahypertrophie mittels Injektion von artfremdem Blut.) O. Jüngling.

December, XCVI. Nos. 1-3, pp. 1320

- 122 *The Scopolamin Combination Anesthesia. (Die Skopolamin-Mischnarkose.) P. Sick.
123 *Surgery of the Nerves and Anatomic Healing of Nerve Injuries. (Mitteilungen aus dem Gebiete der Nervenheilkunde mit einer einleitenden Abhandlung über die anatomischen Verheilung der Nervenverletzungen.) Bardenheuer.
124 Temporary Closure of Colon During Operations on the Intestine. (Temporärer Verschluss des Colon beim Resektion oder Ausschaltung des Darmes.) Wilms.
125 Etiology and Treatment of Inflammatory Stenosis of the Rectum. (Ätiologie und Behandlung der entzündlichen Mastdarmstenosen.) V. Gaudiani.
126 *Surgery of Biliary Apparatus. (Zur Chirurgie der Leber und der Gallenwege.) A. Jenckel.
127 Chronic Juvenile Deforming Osteoarthritis. M. Matsuno.
128 Split to Remodel the Arch of the Foot After Fractures. (Schleife zur Modellierung des Fussgewölbes bei Frakturen der Fusswurzel, speziell bei Calcaneusfrakturen.) W. Müller.

117. Serum Treatment of Anthrax.—Læwen comments on the increasing tendency to less active measures in treatment of superficial anthrax, and declares that expectant treatment, supplemented by specific serotherapy, is giving very promising results at Trendelenburg's clinic, where it has been applied in seven cases with severe general symptoms. A large intravenous dose is advised, repeating the injection the next and following days if necessary, continuing with small subcutaneous doses. Schlavo and Mendez have had wide experience with this serotherapy, and they report reduction of the mortality to 5 and 6 per cent.

118. Resection of Aneurism in Popliteal Space.—Stieh adds another to the twenty-four cases on record in which the artery or vein was successfully reunited by a circular suture with restoration of normal conditions in the circulation in thirteen and satisfactory condition in the others. His patient can now use his leg freely, although the foot on that side is still a trifle swollen and not quite so strong as the other. The various cases are summarized.

120. Surgical Treatment of Gastric Ulcer and Its Consequences.—This communication from Kyoto gives the details of 21 cases in which operative intervention afforded constant and permanent relief. No operation was attempted for gastric ulcer unless there were symptoms of stenosis.

121. Treatment of Hypertrophy of the Prostate by Injection of Alien Blood.—Bier's experience with injections of alien blood to induce atrophy in malignant tumors suggested the application of alien blood as a means of reducing the size of the enlarged prostate. The blood carries and produces the ferments active in various diseases, and transfusion of alien blood is a harmless means of inducing fever and aseptic inflammation. The blood used was from the pig or lamb, or from cattle, and was drawn from the spurting vessels in the neck as the animal was slaughtered, into a jar containing some glass beads. After two or three minutes it is well shaken. The blood thus defibrinated is taken up in a syringe with a needle 10 cm. long, and it is injected through the perineum, the patient being in the knee-elbow position, directly into the prostate, the needle guided by the finger in the rectum. About 2.5 c.c. of the blood are injected into the lobe first reached; the needle is then withdrawn until the tip reaches the edge of the lobe, when the same amount is injected into the surrounding tissue. The needle is then turned to reach the other lobe and the same amount is injected here and into the adjoining tissue, thus using about 10 c.c. for the

total injection. The details of 15 out of the 21 cases in which this treatment has been given are described in detail. From 1 to 4 injections were made in the different cases at intervals of 8 to 10 days. In all but 4 cases the ability to urinate freely was much improved and micturition became less frequent, while the stream of urine became stronger. Nothing was done for the cystitis in these cases, but conditions improved in this respect after the injections of blood. The results on the whole are regarded as promising. Bier is convinced that persons with enlarged prostate seem to be in a more advanced senile condition than corresponds to their age, so that the depression and psychic disturbances sometimes observed after prostatectomy ought not to be ascribed to the operation. The best results from the injection of alien blood were attained in the acute cases with retention and tenesmus. The relief was so prompt that Jüngling thinks it can be explained only by the development of inflammatory edema causing the spasm of the sphincter to relax. The hyperemia induced is also a factor in the results.

122. Combined Scopolamin Anesthesia.—Sick has taken up the scopolamin technic again after he had discarded it on account of the death of a patient with severe advanced arteriosclerosis and senile gangrene, operated on under scopolamin and morphin; the patient died in twelve hours without rousing. The favorable experiences related since from other clinics have induced him to resume again this principle of combining minute doses of several anesthetics to produce the desired anesthesia without the toxic action of large doses of any of the drugs. During the last seven months he has performed 220 major operations under the combination of scopolamin with 0.0015 gm. of morphin half an hour before the operation—he warns expressly that this dose should not be surpassed—and then ether or chloroform.

123. Surgery of the Nerves.—Bardenheuer's article fills 200 pages, commencing with a study of the anatomic healing of nerves after injuries, and of the time required for regeneration and restoration of function. He then describes his personal experience with plastic operations on the nerves (eight cases), also with suture of the nerves, treatment of the nerves after amputations and infectious processes, reporting a total of forty-three cases in which he has operated on nerves. He upholds the neuron theory and the assumption that the function of the nerve is dependent on the continuity of the nerve fibers with the ganglion cells and on suitable nourishment from the blood. Everything promoting the circulation of blood in the region, promotes nourishment of the nerves and ganglion cells. In resections it is important, therefore, to shorten the muscles so that they are left taut and thus have to contract at the slightest voluntary impulse; this increases the circulation in the part. The nerve is best sutured with fine catgut, passed directly through it; restoration of function may occur in from three to six weeks, but often months are required or even years. He advises exposing the nerve if it gives the degeneration reaction in two weeks after the onset of paralysis resulting from compression of the nerve during an operation or childbirth. It is thus possible to free the nerve from a hematoma or to cure an existing lesion. He lays down a number of other rules deduced from his extensive experience which embraces nearly the entire field of nerve surgery.

126. Surgery of the Biliary Apparatus.—Jenckel reports the experiences at Braun's clinic at Göttingen with operative treatment of 7 cases of rupture of the liver, 2 of sarcoma, 4 of syphiloma, 5 of dubious diagnosis, and a case of non-parasitic cysts in the liver.

Jahrbuch für Kinderheilkunde, Berlin

December, LXVIII. No. 6, pp. 649-772.

- 129 Rachitic Myopathy. R. Bing.
130 *Relations Between Thymus and Nervous System. (Zur Physiologie und Pathologie der Thymus.) K. Basch.
131 *Intoxication in Course of Nutritional Disturbances. (Ueber alimentäre Intoxikation.) H. Finkelstein.

130. Relations Between the Thymus and the Nervous System.—Basch relates that removal of the thymus of young dogs caused exceptional excitability of the peripheral nervous sys-

tem, as shown by electric tests. This throws new light on the relations between the thymus and nervous system. His experimental research has convinced him that the parathyroid bodies are not exclusively responsible for the etiology of tetany, but rather that a whole group of allied organs are involved. Among these the thymus takes a prominent place as reacting the most readily to general disturbances. In normal conditions the thymus seems to be connected with the growth of the body and the development of the bones in early life, and also with a certain reaction of the motor apparatus to the electric current.

131. Alimentary Intoxication.—Finkelstein continues his study of this subject, defining alimentary intoxication as the paradoxical reaction of the child, under the influence of disturbances from improper food, to the ingestion of sugar in amounts larger than the tolerance. He has previously shown that sugar has toxic properties for infants if given beyond the limit of tolerance. In the metabolism of a child whose nutrition is disturbed, fat has an injurious action on the sugar-assimilating functions. This causes less sugar to be assimilated than normal, the clinical manifestation of which is that the tolerance for sugar is reduced.

Medizinische Klinik, Berlin

December 13, IV, No. 50, pp. 1899-1936

- 132 Chorea in Children. (Chorea im Kindesalter.) F. Siegert.
- 133 *Modern Methods of Investigating the Internal Ear and Their Importance. (Moderne Untersuchungsmethoden des Vestibularapparates.) R. Barany.
- 134 *Artificial Foods. (Wesen und Bedeutung der künstlichen Nahrungsmittel.) Lipowski.
- 135 *Dry Inhalation in Therapeutics. (Die Trockeninhalation nach dem Körtingschen System.) C. Schütze.
- 136 Experimental Research on Absorbing Capacity of Bowels During Forced Feeding and Muscular Exertion. (Resorptionskraft des Darmes bei Ueberernährung und Muskelarbeit.) F. Heinsheimer.
- 137 Advantages of Ocean Trip in Pulmonary Tuberculosis. (Bedeutung von Seereisen für die Therapie der Lungentuberkulose nebst Vorschlägen zur Ausführung.) W. Hoidelheim.

133. Nystagmus.—Barany reviews the important information that may be obtained from tests of the semicircular canals not only for affections of the internal ear, but for the diagnosis of tumors in the cerebellum and for estimation of the effects of trauma. He describes a fixator which records the amount of deviation of the eyes, a sliding button on a band around the forehead. To detect simulation of vertigo the patient's head is suddenly pushed over backward; nystagmus toward the affected side excludes malingering.

134. Artificial Foods.—Lipowski reviews the various foods on the market and remarks that if physicians would pay more attention to cooking for the sick, an important branch of the healing art, the artificial foods would not be so extravagantly over-estimated. Their only field, he thinks, is in long febrile and consumptive diseases, in which sufficient nourishment can not be obtained with ordinary food. They are also useful when it is important to refrain from exciting peristalsis in the digestive tract, as in the case of appendicitis or gastrointestinal ulceration.

135. Dry Therapeutic Inhalation.—Schütze describes a method for inhalation of extremely minute dry particles. The substance used is salt. The brine is sprayed into a strong current of air, the humidity graduated so that all the moisture in the spray is taken up by the air, leaving the minute particles of the spray to form a dry dust, permitting thus extremely fine division of the particles suspended in the air. He applies this method in sanatorium treatment, the medicated air flowing down into the hall from above, there being arrangements, of course, for heating and constant renewal of the air throughout the hall. The effect of this treatment has been particularly marked in chronic catarrhal affections of the air passages.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

December, XXVIII, No. 6, pp. 637-76

- 138 Tardy Lactation. (Zur Kenntnis Spätlaktation.) J. K. Friedjung.
- 139 Anatomy of Cysts of Labia Minora. (Zur Anatomie der Cysten der kleinen Schamlippe.) J. Bondl.
- 140 Structure and Function of Epithelium of Fallopian Tubes. (Bau und Funktion des Eileiterepithels beim Menschen und bei Säugetieren.) J. Schaffer. Concluded.

Münchener medizinische Wochenschrift

December 15, LV, No. 50, pp. 2596-2670

- 141 *Forcible Opening of Amniotic Sac for Artificial Premature Delivery. (Der Blasenriss bei der künstlichen Frühgeburt.) O. v. Herff.
- 142 Loss of Tendon Reflexes in Functional Nervous Affections. (Verlust der Sehnenreflexe bei funktionellen Nervenkrankheiten.) R. v. Hoesslin.
- 143 Excitability of Respiratory Center and Consumption of Oxygen in Natural and Artificial Sleep. (Ueber Veronalnatrium und die Erregbarkeit des Atemzentrums, sowie den Sauerstoffverbrauch im natürlichen und künstlichen Schlaf.) H. Winternitz.
- 144 *Determination of Parasites in the Blood. (Zum Nachweis von Parasiten im Blut.) C. Stäubli.
- 145 Blood-Pressure Raising Substances in the Blood in Nephritis. (Zur Frage der drucksteigernden Substanzen im Blute bei Nephritis.) Schlager.
- 146 *Influence of Constriction Hyperemia on Local Tuberculin Reaction. (Einfluss der Staung auf die lokale Tuberculinreaktion.) O. Aronade and A. Falk.
- 147 Clinical Unity of Paratyphoid. (Zur Frage der klinischen Einheit des Paratyphus.) E. Meinicke.
- 148 *Neuralgia of the Kidneys. (Zur Nierenneuralgia.) Urban.
- 149 *Hypertrophy of Trabeculae in Bladder Wall as Early Symptom in Tabes Dorsalis. (Die Balkenblase als Frühsymptom bei Tabes Dorsalis.) F. Böhme.

141. Opening the Amniotic Sac for Premature Delivery.—von Herff states that his assistant, Schüfli, has collected from the literature 700 cases in which pubiotomy was done, with full details of 664 of the cases. They show a long list of mishaps, a maternal mortality of 4.9 per cent.; of the children, 9.6 per cent., with hematoma in 17 per cent.; severe laceration in 15.4 per cent., with the death of 12.6 per cent. of these women; injury of the bladder in 12 per cent. and thrombophlebitis in 8 per cent. In 120 women examined later there was hernia from the slit in the bone in 7.5 per cent., prolapse of the vagina in 24 per cent. and permanent incontinence of urine in 4 per cent. On the basis of these unfavorable showings, von Herff urges the necessity for artificial premature delivery as a routine measure instead of attempting pubiotomy. The simplest means to induce it is by opening the bag of waters, not by a puncture, but by tearing it open, allowing from 50 to 100 c.c. of fluid to escape, or even more. In 718 cases in his service in which this measure was applied, the total mortality of the children was 2.8 per cent. and none of the mothers showed any injury from it. In 78 women with contracted pelves childbirth was facilitated in this way in 100 instances. It is not attempted until he is convinced that it is practically impossible for the head to pass. Of the 101 children, 80 per cent. left the clinic in good condition and are still thriving, although in 73 per cent. of the women the true conjugate ranged from 7.5 to 8.5 cm. His aim is to facilitate as much as possible the difficult delivery in such cases, and nothing, he says, accomplishes this so simply and easily as this opening the bag by a simple tear, merely spreading the branches of the little instrument; an ordinary sound will not do. He adds that artificial premature delivery is contraindicated in primiparae unless the pelvis is very much deformed. The state of the cervix and os is immaterial, but it is important to allow plenty of fluid to escape. The average duration of labor is about twenty-six hours, but in family practice it may be shortened by vaginal douches.

144. Determination of Parasites in the Blood.—Stäubli dissolves out the red corpuscles, which renders it much easier to detect the parasites. The freshly drawn blood is diluted with a large amount of 3 per cent. acetic acid and then centrifugalized. He found this method especially simple and convenient in differentiation of trichinosis, malaria, etc.

146. Influence of Local Congestion on Local Tuberculin Reaction.—Aronade and Falk noticed that the site of a specific local tuberculin reaction on the arm of a girl with miliary tuberculosis became covered with minute hemorrhages after application of a constricting band above, while the control papule showed nothing of the kind. They then attempted to induce this phenomenon artificially, and they report the results in 90 cases. The congestion hemorrhages were constantly observed, even after an interval of fully six weeks after the tuberculin inoculation. The diagnostic importance of the phenomenon consists in the fact that these hemorrhages may be observed even when there is no appreciable reaction to the tuberculin inoculation; they never occur at the control spots.

148. Renal Neuralgia.—Urban reports a case of unmistakable pure neuralgia of the kidney under observation for five years. The patient was a tailor's wife, 26 years old, and the recurring attacks of intense pain in the right side were ascribed to gallstones, but an exploratory laparotomy disclosed nothing pathologic. The attacks continued and the appendix was removed during an attack of acute appendicitis, but still the pains in the right side constantly recurred and the patient insisted on another operation. The right kidney was exposed and found apparently normal, but decapsulation was done, freeing the kidney completely from the capsule all around. The dull ache was banished, and there has been no recurrence of the pain since. The only explanation can be that the capsule did not fit the kidney. It seemed to be normal in every respect, but must have been a size too small.

149. Hypertrophy of the Bladder Trabeculae as Early Sign of Tabes Dorsalis.—Böhme asserts that after exclusion of other causes which might induce hypertrophy of the bladder wall, its discovery is strong evidence in favor of tabes. In a certain number of cases it is the earliest appreciable symptom. Contrary to the hypertrophy observed with obstruction of the outlet, as in case of enlarged prostate or stricture, with the pure tabes "beam bladder"—as the Germans call the condition with hypertrophied trabeculae—the ramifications of the trabeculae are enlarged regularly and delicately throughout, not predominantly in the vicinity of the trigonum, fundus and side walls as is observed in case of enlargement of the prostate. The mechanism, however, is practically the same—the bladder seeking to compensate by extra muscular effort for the difficulty experienced in voiding its contents. Retention of urine in pure hysteria does not entail this enlargement of the trabeculae—at least he observed no tendency of the kind in a case of hysterical paralysis of the bladder with retention of urine for seven weeks. He describes eight cases in detail; in all the patients applied to the physician merely for relief from the bladder symptoms and the difficulty in urination. The cystoscope revealed the hypertrophied trabeculae, suggesting incipient tabes, confirmed by the later course of the cases. It was either the earliest symptom or accompanied some other early manifestation. The cystoscope is able to reveal the condition before a tendency to retention and residual urine develops.

Zeitschrift für klinische Medizin, Berlin

LXVII, Nos. 1-3, pp. 1-251, *Koranyi Festschrift. Last indexed Jan. 2, p. 81*

- 150 Threshold Percussion of Stomach. (Die Schwellenwertpercussion des Magens.) A. v. Koranyi.
- 151 Sensory Roots of the Spinal Cord. (Zur Physiologie und Pathologie der sensiblen Wurzeln des Rückenmarks.) R. R. Balint.
- 152 *Roentgen-Ray Treatment of Blood Diseases. (Röntgenbehandlung von Blutkrankheiten.) J. v. Elischer and K. Engel.
- 153 *Experimental Study of Origin of Nephritic Edema. (Entstehung der nephritischen Oedeme.) J. Bence.
- 154 *Diabetes Insipidus. K. Engel.
- 155 Phagocytosis and Opsonins. J. Kentzler.
- 156 Changes in Virulence of Tubercle Bacilli in Course of Specific Treatment. (Virulenzveränderung der Tuberkelbazillen im Verlaufe der spezifischen Behandlung.) G. Kiralyfi.
- 157 *Action of Kuhn's Lung Suction Mask in Heart Disease. (Wirkung der Kuhn'schen Lungensaugmaske bei Herzkrankheiten.) G. Morelli.
- 158 Refraction Findings in Blood Serum After Ingestion of Salt. (Verhalten des Refraktionswertes des Blutserums nach Aufnahme von Kochsalz.) J. v. Benecur.
- 159 Connection Between Albumin Content of Blood Serum and Serous Effusions. (Zusammenhang des Eiweißgehaltes des Blutserums und der serösen Flüssigkeitsergüsse.) K. Engel and O. Orszag.
- 160 Perforation of Aortic Aneurism into Superior Vena Cava. A. Barcza.
- 161 Passage of Pancreatic Juice into the Stomach. (Uebertritt von Pankreassaft in den Magen.) B. Molnar.
- 162 Nitrogen in Sputum with Gangrene of Lung. (Stickstoffgehalt des Sputums bei Lungengangran.) O. Orszag.
- 163 Inhibiting Action of Yoghurt Bacillus on Colon Bacillus. (Wirkung des Bacillus bulgaricus auf den Bacillus coli.) T. v. Kern.
- 164 *Cambridge Pancreatic Reaction. N. Roth.
- 165 *Experimental Research on Antagonistic Action of Adrenalin and Calcium Chlorid. (Zur antagonistischen Wirkung des Adrenalins und Chlorkalziums.) F. Schrank.
- 166 Action of Antipyretics on Phagocytosis. J. Kentzler and J. v. Benecur.

152. Roentgen-Ray Treatment of Blood Diseases.—Elischer and Engel report from Koranyi's clinic 44 cases of leukemia,

lymphosarcoma or mediastinal tumors treated with the Roentgen rays since 1904, and they discuss these experiences in detail. It is especially important that this treatment should be applied in the early stages; later, much more intensive treatment becomes necessary, with all its inherent dangers. They advise radiotherapy for all tumors in the mediastinum and all phenomena suggesting lymphomatosis and leukemia. They remark that it is impossible to foretell whether enlarged lymph glands in the neck will develop into a simple lymphoma, pseudo-leukemia, lymphosarcoma or tuberculous process, but as the Roentgen rays have a beneficial action in all these conditions, they advise early and vigorous Roentgen treatment without waiting for differentiation. In the early stages of cervical glandular processes and mediastinal tumors there need be no fear of destroying large masses of tissue with attendant intoxication, and consequently the treatment can be pushed with great energy. For ten or fourteen days they advise strong daily exposures for eight or ten minutes. Then the exposures are suspended while the patient's sensitiveness to the rays is determined and the appearance of by-effects awaited. After this period of observation the treatment is continued until signs of improvement or of the inefficacy of the measure become evident. They keep up the exposures for two or three months in case of a mediastinal tumor. If good results are not obtained with ten-minute exposures, the patient's susceptibility to the rays is so slight that it is useless to expect to influence the lesion unless the radiotherapy is applied so vigorously that an x-ray burn is almost inevitable. In leukemia the early commencement of treatment is even more important, as in the later stages the exposures must be made with great caution. At first short exposures are made to avoid inducing radiotoxic symptoms and especially to avoid injuring the sensitive capsule of the spleen. There are large masses of tissues to be influenced in leukemia and consequently there is the greater danger of intoxication from absorption of the decaying masses. After eight or ten exposures they suspend treatment for a week, but supervise the patient's blood and weight. It is particularly important not to begin treatment too vigorously in leukemia, and to supplement the radiotherapy with hygienic-dietetic measures. The patient must also be kept under supervision later and treatment resumed at the first sign of recurrence, even if only objective. The main point in leukemia is to work with as small dosage of the rays as possible, utilizing the late action of the rays. Patients unable to have the benefit of hygienic-dietetic measures and freedom from care are not so liable to derive benefit from the radiotherapy, but under favorable conditions it seems to postpone long the fatal outcome while relieving the patients of their pain. In many cases, however, notwithstanding great improvement, yet the danger of acute exacerbation seems to be made more impending by the radiotherapy. In one case, six courses of Roentgen treatment were given in less than four years and always with marked benefit, but there is no case on record of actual permanent recovery. The tissues in time seem to become immune to the action of the x-rays, which thus lose their influence. The tubes are of the 4 or 5 strength (Walter's scale), and a tin-foil filter is used with them. Of the 19 cases of leukemia, 10 of the 13 myelomic and 2 of the 6 lymphemic patients were very much benefited by the treatment.

153. Origin of Nephritic Edema.—Bence relates experiments which show that edema is the result of the passage of fluids from the tissues into the vessels, not the reverse, and that this occurs without the aid of fluid from without. If fluid is ingested it merely accelerates the process without modifying it essentially.

154. Diabetes Insipidus.—Engel reports seven cases studied from various points of view, especially to determine whether the kidneys had lost their ability to secrete a concentrated urine and whether this could be regained under favoring conditions.

157. Suction Lung Mask in Heart Disease.—Morelli has applied Kuhn's mask in several cases of heart affections, aiming to act on the heart by the unusual muscular efforts made to obtain breath enough when inspiration is partially obstructed. The patient has to breathe deep and the contents of the chest

are thus mobilized and exercised to an unusual extent. His impression is decidedly favorable to the use of the mask in affections of the right side of the heart. The subjective disturbances and palpitations of nervous origin also seemed to be improved and the anemia benefited.

164. **The Cammidge Pancreatic Reaction.**—Roth's experiences failed to confirm the reliability and constancy of this reaction.

165. **Antagonistic Action of Adrenalin and Calcium Chlorid.**—Schränk studied the action of adrenalin mixed with calcium chlorid on the enucleated eyeball of the frog and also whether the chlorid was able to prevent the development of arteriosclerosis when adrenalin was injected into rabbits and, further, whether it was able to prevent glycosuria in dogs and rabbits when the chlorid was injected with or soon after the adrenalin. The results were positive in all the experiments except in those with arteriosclerosis. The chlorid delayed the dilatation of the frog eyeball and prevented the development of the glycosuria.

Zentralblatt für Chirurgie, Leipsic

December 26, XXXV, No. 52, pp. 1545-1568

167 **Operative Treatment of Old Fracture of Patella with Wide Gap.** (Zur operativen Behandlung veralteter Kniegelenksbrüche mit grösserer Diastase der Fragmente.) H. Turner.

Zentralblatt für Gynäkologie, Leipsic

December 26, XXXII, No. 52, pp. 1649-1680

168 **Perforation of the Uterus in Abortive Maneuvers.** W. Weibel.
169 **Isolated Laceration of Hymen from a Fall.** (Fragliche Entstehung eines isolierten Hymenrisses.) R. Silbermann.
170 **Laminaria.** (Sind Quellstifte notwendig?) C. Fleischmann.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 24, XXIX, No. 154, pp. 1653-1660

171 **Pathogenesis of Hemolytic Jaundice.** (Patogenesi dell'ittero da emolisi.) A. Massaglia and L. Tarabini.

Policlinico, Rome

December, XV, *Surgical Section*, No. 12, pp. 521-564

172 **Two Cases of Meningocele with Hernia of Spinal Cord.** (Sul meningocele con procidenza di midollo.) M. Francini.
173 **Elastic Fibers of Ovary in Relation to Hyaline Degeneration of the Vessels and Graafian Follicles.** S. Puglisi-Allegra.
174 **Endothelioma of Gasserian Ganglion.** R. Gianni. Commenced in No. 11.

December 20, *Practical Section*, No. 51, pp. 1605-1636

175 **Symptomatology of Tuberculin Reactions.** (Semeiologia delle reazioni tubercoliniche.) G. Massini.

Sei-i-kwai Medical Journal, Tokyo

October 31, X, No. 320, pp. 335-343

176 **Pyosalpinx.** K. Yamada.

Nordiskt medicinskt Arkiv, Stockholm

XLI, *Internal Medicine*, No. 2. Last indexed Oct. 24, p. 1476

177 ***Recovery After Long Duration of Insanity.** (Spätheilung von Psychosen.) A. Petren. Concluded.
178 **A Study of Uric Acid.** J. P. Chrom. (in English).
179 **Keloid from Tattooing.** (Fälle von Tatowierungskeloiden.) E. Welander.
180 **Absorption of Insoluble Mercurial Preparations Injected into the Muscles.** (Resorption der unlöslichen Quecksilberpräparate bei intramuskulärer Injektion.) S. Birger.

Surgery No. 1. Last indexed July 25, p. 360

181 ***Treatment of Inflammatory Affections of the Ovaries and Fallopian Tubes.** (Behandlung entzündlicher Adnexitis-krankungen.) J. Kaarsberg.
182 ***Habitual Dislocation of the Shoulder Joint.** (Die habituelle Schultergelenksluxation.) K. Dahlgren.
183 ***Non-parasitic Cysts in the Spleen.** (Zur Kasuistik der nicht-parasitären Milzcysten.) E. Landelius.

177. **Recovery After Long Duration of Insanity.**—Petren's attention was attracted to this subject by 8 cases in his own experience, and he has collected from the literature 26 similar cases in which patients, after being absolutely insane for from 4 to 12 years, were completely restored and had no recurrence under observation for from four to twenty years after the recovery. The patients' ages ranged from 26 to 58 when they first became insane, with the exception of 3 between 14 and 17 and one boy of 6. The details are given in a large table, showing the assumed cause for the insanity, the character of the mental affection, the causes influencing recovery, its course and other details. The monograph fills 328 pages and allows certain conclusions, one being that these tardy recoveries, with complete restoration of sanity, were mostly in the form of manic-depressive insanity, associated in some

with paranoia. The latter deserves special attention, to avoid errors in prognosis. In a number of these cases dismissal from the asylum aided materially in the final recovery. Next to this form of insanity, catatonia showed the largest number of tardy recoveries, both among those with an acute onset and those with a more gradual development of the affection. External causes were exceptionally frequent in the etiology of this form, which included both the variety with stupor and that with excitement. In none of these cases had there been a previous attack, but a previous attack had occurred in 7 of the 16 cases of the manic-depressive form and two attacks in another. Tardy recovery also occurred in 4 cases of what Magnan calls *délire systématisé*. In several of the cases related a divorce had been obtained on the ground of incurable insanity, and Petren warns that the prognosis in these forms of insanity should be more guarded.

181. **Treatment of Inflammatory Affections of the Ovaries and Tubes.**—Kaarsberg reviews the experiences at Copenhagen with the three groups of the affection, those with and those without suppuration and the tuberculous. The possibility of spontaneous healing of the tuberculous form justifies conservative treatment. A conservative laparotomy was done in twelve of the twenty-eight cases in this group and the results are very encouraging. The details of the 289 cases are tabulated.

182. **Habitual Dislocation of the Shoulder.**—Dahlgren applies this term to a condition of weakness of the joint in which any moderate external or internal force is sufficient to throw the joint surfaces out of their normal position in respect to each other. Excluding cases in which the trouble is the result of syringomyelia, he reviews 42 cases from the literature and some in his own experience, and insists that proper treatment of the primary luxation would prevent the tendency to recurrence. The only reliable means of treatment is by operative intervention and the joint should be opened for extraction of any movable bodies and to correct the condition as indicated. Good results have been obtained by merely taking up a fold in the capsule to make it smaller, as he describes in detail.

183. **Non-Parasitic Cysts in the Spleen.**—Landelius gives the details of a case and adds forty-seven from the literature. In his case a complete cure was realized by evacuation of the cyst with fixation and drainage.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE SEXUAL QUESTION. By August Forel, M.D., Ph.D., LL.D., formerly Professor of Psychiatry at and Director of the Insane Asylum in Zurich (Switzerland). English translation by C. F. Marshall, M.D., F.R.C.S., Late Assistant Surgeon to the Hospital for the Diseases of the Skin. London. Pp. 536, with illustrations. Cloth. Price, \$5. New York: Rebman Co. By error the price of this work was previously printed as three dollars.

SAUNDERS' POCKET MEDICAL FORMULARY. With an appendix. By William M. Powell, M.D., Author of "Essentials of Diseases of Children." Ed. 9. Adapted to the Eighth Revision (1905) of the U. S. Pharmacopeia. Flexible leather, with pocket and flap. Pp. 308. Price, \$1.75. Philadelphia: W. B. Saunders Co., 1909.

MARRIAGE AND DISEASE. An Abridged Edition of Health and Disease in Relation to Marriage and the Married State. Edited by H. Senator and S. Kaminer, Berlin. Translated from the German by J. Dulberg, M.D., Manchester, Eng. Cloth. Pp. 452. Price, \$2.50. New York: Paul B. Hoeber, 1909.

CONSTIPATION AND INTESTINAL OBSTRUCTION. By Samuel Goodwin Gant, M.D., LL.D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. Cloth. Pp. 559, with illustrations. Price, \$6. Philadelphia: W. B. Saunders Co., 1909.

STATE HOSPITALS BULLETIN, Published Four Times a Year by Authority of the New York State Commission in Lunacy. Vol. 1. No. 3. December, 1908. Paper. Pp. 505. Single copies 50 cents. New York: State Hospital Press.

NEW YORK STATE LIBRARY YEARBOOK OF LEGISLATION, 1907. Edited by Frederick D. Bramhall, Legislative Reference Librarian. Paper. Price, \$1. Albany: University of State of New York, 1908.

HISTORY OF THE CLEVELAND HOMOEOPATHIC COLLEGE FROM 1850 TO 1880. By D. H. Beckwith, M.D., Emeritus Professor, Cleveland Homoeopathic Medical College. Paper. Pp. 72.

THE AMERICAN TROPICS. By William Thomas Corlett. Paper. Pp. 221, with illustrations. Price, \$1.50. Cleveland: The Burrows Brothers Co., 1908.

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Address

SUTURE OF WOUNDS OF THE HEART

WITH REPORT OF A SECOND CASE AND A TABLE OF 150 OPERATIONS*

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"Let no man who hopes to retain the respect of his medical brethren dare to operate on the human heart." These words were spoken less than a quarter of a century ago by a master in surgery and one of the boldest operators who ever lived, but if Billroth could appear to-day he would be astonished to learn that not only does the profession approve of such operations but that the mortality is no greater than he experienced in his own early work in abdominal surgery. Heart surgery is truly modern surgery.

The ancient surgeons had no hesitation in operating on the skull and lungs, but so great was the superstitious fear of touching the heart that we find no record of an operation, even on the pericardium, until 1793, when the great military surgeon, Baron Larrey, planned the operation and removed fluid from the pericardium with a hollow needle. It seems that the first operation on account of a wound of the pericardium was done in 1887 by another military surgeon, a former member of the Association of Military Surgeons, Col. R. Harvey Reed, who removed a section of the sixth rib from a patient who had been stabbed in the region of the heart, cleaned out the blood clots and sutured the pericardium, with recovery of the patient. Four years later, in 1891, Dr. H. C. Dalton, of St. Louis, performed a similar operation with a like result. Many other surgeons have operated on the pericardium, usually with recovery. In 1895 Rosenthal proved that a dog could recover from experimental wounding of the heart under the simple treatment of plugging the wound with iodoform gauze. In the same year Del Vecchio conducted a number of experiments and succeeded in curing a dog after making and suturing two perforating wounds in the left ventricle.

Thus was the way prepared for operations on the human heart: first, the observations of Paré, Fischer and many others that wounds of the heart were not always fatal; second, the idea of treating such wounds in a rational way as conceived by many (Roberts in 1881 advised that heart wounds should be closed by sutures), and, third, the demonstration that suture of the heart in the lower animals could be successfully accomplished.

THE FIRST OPERATION

All that could be done had been done except to perform the operation on the human heart, when, in 1896,

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just 98 years after the first operation on the pericardium, Farina, of Rome, closed with three silk sutures a stab wound of the right ventricle of the human heart. The patient died of pneumonia on the sixth day, but he had lived long enough to prove the success of the operation. In 1896 suture of the heart was done in 3 cases with 1 recovery; 4 with 1 recovery in 1897; 12 with 5 recoveries in 1898, and so on until the present time, when I am able to present a table of 150 patients in whom the heart was sutured.

Care has been taken to avoid repetition and other errors by reading the original reports, but this was sometimes impossible. Operations on the pericardium only and those operations on the heart other than by suturing have been left out of the table. Such are the cases of Hill and Doyle, each of whom extracted a needle from the heart; of Weiss and of Sartirana and Borsotti, each of whom tamponed a heart wound; of Picqué, who simply drained the pericardium for a bullet imbedded in the wall of the left ventricle, with recovery; of Tuffier, who removed a bullet imbedded in the wall of the left auricle and drained the pericardium, with recovery; and of Guidone, whose patient died before he had time to begin the introduction of sutures. The case of the negro physician, Williams, has been erroneously included in several tables of cases of heart suture both in this country and abroad. I have rejected it for the same reason that Lenormant gave for omitting it from his table, namely, that it was not an operation on the heart. In my original table, published in 1901, twenty-six cases were tabulated, of which only three were done in America. Now at least fourteen have been done in America with six recoveries. My second case of heart suture was as follows:

CASE OF HEART SUTURING

History.—R. D., male, colored, aged 32, barber, was admitted to the Emergency Hospital Feb. 1, 1908, having just been stabbed in the left breast with a knife.

Examination.—The patient was in a semicomatose state, partly due to drink, with cold extremities and pulse of 120, at times imperceptible at the wrist. On auscultation the heart sounds were faintly heard. An incised wound about half an inch long was seen, one-sixteenth of an inch to the inner side of the left nipple between the fourth and fifth ribs. Very little blood escaped. A probe was passed into this wound and took a downward and inward course to a depth of $3\frac{1}{2}$ inches. A diagnosis of probable wound of the heart was made, and the operation was begun as soon as practicable—a little more than one hour after the receipt of the wound.

Operation.—With strict asepsis a flap was made of the left fourth, fifth and sixth cartilages, hinge internal, by cutting through the third and sixth intercostal spaces horizontally, uniting the outer ends of these incisions by a vertical one crossing the fourth, fifth and sixth ribs, which were divided at their junction with the cartilages. The flap thus made was lifted up, the pleura stripped from it and turned across the sternum, hinging on the left chondrosternal junction. (Fig. 1.) The pleura was thus widely opened, and the left

lung soon collapsed. The stab wound had passed through the left lung, pericardium and into the right ventricle near the interventricular septum, making a wound a third of an inch long into the cavity of the ventricle, near its lower end. Little blood was found in the pericardium, but more than a pint was removed from the left pleural cavity. The pericardial wound was enlarged to about three inches, when the wound in the ventricle was clearly seen, with a small jet of dark blood spurting out with each systole. The lips of the wound were caught with hemostatic forceps and held together while a continuous suture of fine silk—five sutures—was made. The stitch holes bled, so that a second row of silk sutures was inserted, Lembert style, making in all about twelve sutures. Two points continued to bleed and were caught up with forceps and ligated with catgut. Hemostasis was then complete, and the heart beat well and strong. The ventricular walls seemed no thicker than those of an auricle. The pericardium, being clean, was closed without drainage with a continuous catgut suture. The pleura was closed in the same way after drying it out with gauze, the costal cartilages being sewed back to the ribs and divided muscles united—all with catgut, except the skin, in which silkworm gut was used. The pulse was 120 at the end of the operation, but of better quality than before.

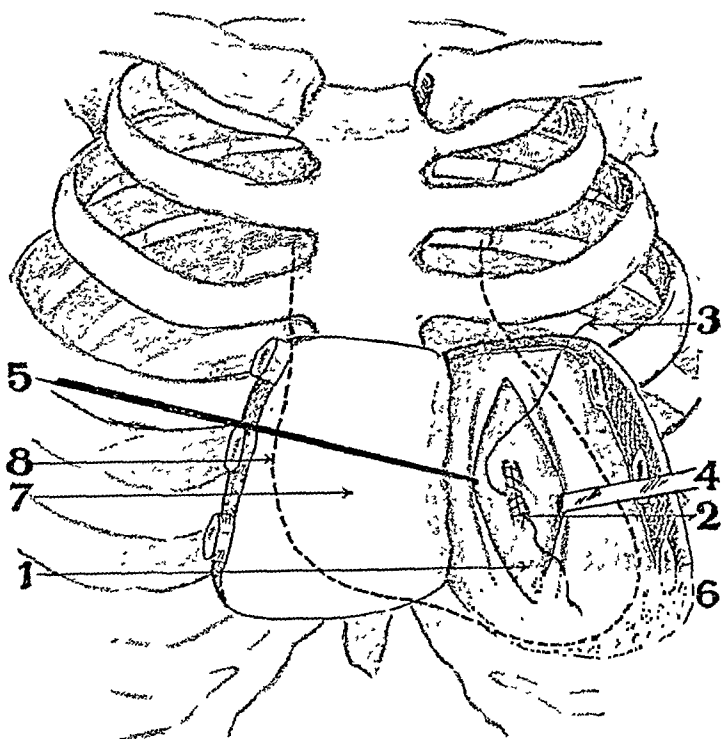


Fig. 1.—Operation for wound of the heart. 1, heart; 2, deep sutures; 3, superficial sutures; 4 and 5, retractors on pericardium; 6, left pleural space; 7, flap of chest wall, including fourth, fifth and sixth ribs; 8, heart outlined by broken line.

Postoperative History.—February 2: Pulse 120 to 140, temperature 102 F., and respirations 40 to 60.

February 5: Symptoms of delirium tremens came on and a restraining apparatus was necessary to keep the patient in bed. Whiskey was ordered.

February 6: The patient was violently insane, so the whiskey was increased until on February 7, when he was taking two ounces every hour, and actually took three pints during this twenty-four hours. Pulse fell from 132 to 120, and the mental condition improved.

February 8: He was conscious most of the time.

February 9: Mind clear, and restraining apparatus was removed and the whiskey reduced to two ounces every four hours.

February 10: Delirium returning, whiskey was again increased, and the mental and other symptoms at once began to improve. Cough troublesome. The left lung had expanded and seemed to fill the pleural cavity. The wound healed without trouble, and February 25 the patient was up for the first time. Pulse 80, temperature 98.4 F.

March 11: Patient was discharged recovered and was presented to the District of Columbia Medical Society.

March 29: Patient was readmitted to hospital on account of excessive drinking.

April 16: He was discharged in excellent condition; heart sounds a little softer than normal.

May 18: Patient seemed in good health.

October 11: Patient is apparently in perfect health.

STUDY OF THE TABLE

The features presented by the table may be studied as follows:

TIME BETWEEN RECEIPT OF WOUND AND OPERATION

In 106 cases this time is given all the way from "at once" to 5 days—the large majority of patients, 88, being operated on not later than 6 hours after the injury (44 in 1 hour or less and 44 in from any time over 1 hour to 6 hours), with 35 (39.75 per cent.) recoveries; 10 between 6 and 12 hours, with 5 recoveries; 1 between 12 and 18 hours, with recovery; 4 between 18 and 24 hours, with 1 recovery; 2 between 24 and 48 hours, with 2 recoveries, and 1 after 5 days, with recovery. These figures would indicate that the longer the time after injury before operation the less the mortality, but it must be borne in mind that in the worst cases the patients die or are saved by operation before the expiration of the first six hours, and those who survive this time are the best risks from an operative standpoint.

LOCATION OF EXTERNAL WOUND

Ever since Joab so treacherously and fatally smote Amasa in the fifth rib a wound in this region has been regarded as especially dangerous and the figures here presented confirms this opinion. Of 133 patients in whom the situation of the external wound was given, 130 were on the left side, including:

- 1 through the first intercostal space.
- 6 through the second intercostal space.
- 19 through the third intercostal space.
- 52 through the fourth intercostal space.
- 36 through the fifth intercostal space.
- 7 through the sixth intercostal space.
- 2 through the seventh intercostal space.
- 6 below the costal cartilages.

On the right side there was one case each of wounding through the second, fourth and fifth interspaces. Ninety-one, or 68 per cent., were just above or just below the fifth rib, and 110, or 83 per cent., were between the third and the sixth ribs.

INSTRUMENT BY WHICH WOUND WAS INFLICTED

Of 140 cases in which the weapon was indicated, 117, or 83 per cent., were caused by knives or poniards; 16, or 12 per cent., by bullets; 2 by scissors; 2 by iron pickets; 1 by a fragment of glass; 1 by a needle, and 1 by a sharp pointed body. In 10 the instrument is not given.

METHOD OF EXPOSING THE HEART

No single method has yet been agreed on as the best. The kind of operation is often determined by the external wound, and, begun as an exploration, the subsequent steps depend on the necessities which arise during its progress. This probably accounts for the large number of resections of cartilages or parts of ribs rather than the formation of a well planned flap of skin, muscle and ribs. The best method is one that will freely expose the heart and not open the pleura or leave the chest wall permanently impaired. The chief methods are:

(a) *The Operation Through an Intercostal Space.*—In a long chest with wide spaces this may be done.

Somerville reports a successful suturing of the left ventricle through the fourth intercostal space. This method may be modified and the space increased by the division of one or two cartilages.

(b) *Resection of One or More Cartilages With or Without a Portion of Rib.*

(c) *Flap Method Across the Sternum (H. Lorenz and Others Fig. 2)* Make a transverse incision from the right side of the sternum in the third intercostal

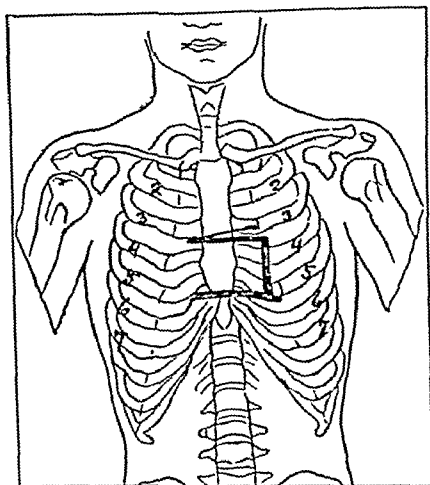


Fig 2—Flap of sternum and cartilages of fourth and fifth ribs; hinge on the right (H Lorenz and others)

space across the sternum to the left chondriocostal junction. Make a corresponding incision in the fifth intercostal space across the sternum. Unite the left ends of these incisions by a vertical one. The sternum and cartilages are divided with bone forceps along these incisions after ligating the internal mammary arteries and the flap formed is turned to the right, making a hinge of the right chondriosternal joints. This exposes the heart well and avoids opening the pleura.

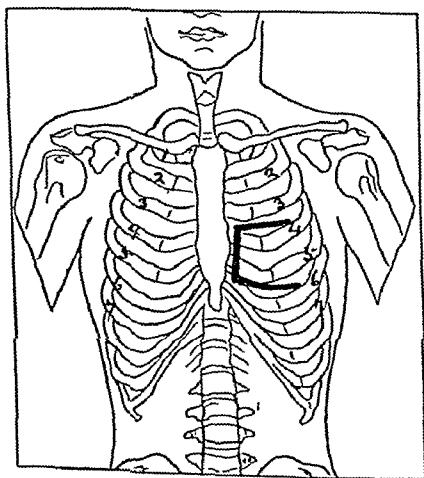


Fig 3—Flap of the fourth and fifth ribs and their cartilages; hinge external

(d) *Flap of Cartilages and Ribs, Hinge External.* (Fig. 3) —In this method the fourth and fifth cartilages are divided near the left border of the sternum, the third and fifth interspaces are divided laterally nearly or quite to the nipple line. The flap is raised by its inner border, the pleura stripped off if practicable, and the ribs are broken or cut near the costochondral junction

(e) *Flap of Cartilages and Ribs, Hinge Internal.* (Fig. 4).—This method is just the reverse of the preceding, the trap-door opening near the left nipple line and hinging on the left fourth and fifth chondro-ternal articulations. The pleura is probably always opened in this method. If more room is needed or the location of the external wound requires it, the flap may include additional cartilages, above or below. The last two methods can be quickly performed and expose the heart well, but are almost certain to open the left pleura. Of 133 operations, in 60 a portion of one or more cartilages or ribs were resected; in 71 a flap of the chest wall was made with the hinge external or internal—occasionally the hinge was placed above or below, and in two cases the suturing was done through an intercostal space.

CAVITY OF HEART WOUNDED AND TREATMENT.

Of 112 patients the left ventricle was wounded in 68, the right ventricle in 68, the left auricle in 4, the right auricle in 4, 2 had each 2 cavities wounded (1 both ventricles and 1 the right auricle and right ventricle) and in 8 the cavity is not mentioned or the weapon passed between 2 cavities. These statistics show that the two sides of the heart are equally liable to injury,

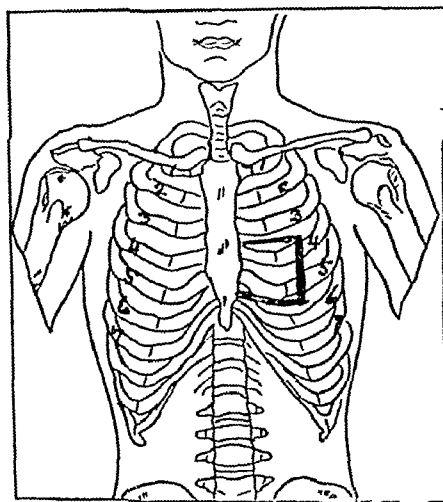


Fig 4—Flap of the fourth and fifth ribs and their cartilages; hinge internal

but that the ventricles are in much greater danger than the auricles in the proportion of 17 to 1.

The size of the wound in the heart varied from 0.5 cm (1/5 in.) to 6 cm. (2 1/4 in.). In every case the wound was sutured. The favorite suture material was silk, but catgut was used in many patients. Continuous and interrupted sutures were both used and were introduced by most operators whenever convenient, regardless of systole or diastole. It seems to make no trouble if the suture does enter the cavity of the heart. Tumultuous heart action sometimes interfered with the introduction of the sutures. This was overcome by holding the heart in one hand or using one or two deep sutures, "tension sutures," by which the heart was steadied or drawn forward as might be necessary. In several cases heart massage was used in order to revive a pulseless heart and in a few cases the heart resumed its function.

DRAINAGE OF PERICARDIUM AND PLEURA

In 46 patients the pericardium was drained with 25 recoveries and 23 deaths; in 44 the pericardium was not drained, with 25 recoveries and 19 deaths; in 42 both pericardium and pleura were drained, with 21 recoveries

and 21 deaths; in 19 both pericardium and pleura were closed without drainage, with 12 recoveries and 7 deaths; in 72 the pleura was drained, with 30 recoveries and 42 deaths; in 21 the pleura was not drained, with 13 recoveries and 8 deaths. The lesson taught is to do away with drainage. Some of the disadvantages of drainage are the risk of secondary infection, irritation or inflammation excited by the gauze or tube, and the bad effects on the collapsed lung of keeping the pleura open. However, some cases should be drained, as when infection is highly probable or hemostasis has not been satisfactory.

MORTALITY

Of 150 patients operated on, 98 died and 52 recovered, a mortality of 65 per cent., about the same as it was twelve years ago and in 1901, when 26 cases were reported. Naturally, the mortality must always be high. Thirty-two patients died in less than twenty hours after operation or the reception of the wound, fifteen on the operating table during or just after operation—nearly all from loss of blood, though one death was attributed to pneumothorax on opening the left pleura. Thus we may say that 32, or 20 per cent., of the patients are moribund when the surgeon first sees them.

The remaining 66 deaths occurred from 24 hours to 5 months after operation; 6 of pleurisy, 5 of pericarditis, 21 of pleurisy and pericarditis together, 3 of pneumonia, 3 of peritonitis, 2 of pericarditis and nephritis, 1 of pleurisy and cerebral abscess, 1 of pleurisy and wound of the tricuspid valve, 1 of pleurisy and double pneumonia, 1 of gangrene of the lung, 1 of two wounds of which one was not sutured, 3 of hemorrhage in the pleura, 2 of hemorrhage in the pericardium, 1 of clot in the tricuspid valve, and in 15 the cause is not given.

We see that 44 of those who died after the first 20 hours, or 86 per cent. (omitting the 15 in which the cause of death is not given), died of infection, and of the 52 who recovered only 12 escaped without infection, 22 had pericarditis or pleurisy, and in 18 it was not stated. Of the entire 118 patients surviving the first 20 hours, 62, or 52 per cent., suffered from infection.

The mortality with reference to the cavity wounded is as follows: Sixty-eight of the left ventricle with 42 deaths, or 62 per cent.; 68 of the right ventricle with 48 deaths, or 70 per cent.; 4 of the left auricle with 2 deaths, and 4 of the right auricle with 1 death.

Sixteen gunshot wounds were operated on with 9 deaths and 7 recoveries, a mortality of 56 per cent. In the 134 cases with other wounds 89 died and 45 recovered—mortality 66 per cent., from which it would appear that gunshot wounds of the heart have about 10 per cent. lower mortality than other kinds of heart wounds.

CONCLUSIONS

1. There is no longer any question as to the propriety of the operation, since 35 per cent. of the patients recover, compared with 15 per cent. (according to Holmes and Fisher, 1881) of recoveries after nonoperative treatment—a gain of 20 per cent.

2. The mortality is practically the same that it was twelve years ago, when the operation was first introduced, and it behooves the surgeon to study the matter and find a means of improvement.

3. The two great causes of death are hemorrhage and inflammation of the pleura or pericardium. Probably little more can be done than has been done to prevent death from hemorrhage, but inasmuch as more than half the patients who survive twenty hours have infection.

4. There is room for great improvement in preventing infection. Besides the observance of strict asepsis the question of opening the pleura and of drainage of pleura or pericardium acting as predisposing causes of infection is of the greatest importance.

5. As a rule, therefore, the pericardium and pleura should not be drained.

Following is the bibliography, arranged alphabetically by publications, and the table, arranged alphabetically by operators, with year of operation as nearly as ascertainable and with figures of reference to the bibliography.

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TABLE OF RECORDED CASES OF SUTURE OF THE HEART

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Indicated.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium	Pleura.		
1	Alves de Lima ²⁰ 1905	Soon. Chloro.	Knife cut over left fourth cartilage.	Flap of 3rd and 4th ribs—hinge external.	L. V.: 11 mm.; 1 cutgut suture.	No.	Yes.	Mitral valve wounded. Heart stopped twice and was revived by massage.	Died one hour later. Hemorrhage.
2	Balliva ³⁷ 1897	.....	Stab wound of heart.	.....	Heart wound sutured.	...	...	.....	Died quickly.
3	Bardenheuer ³⁷ 1901	.....	Gunshot wound.	.....	Heart perforated; entrance and exit wounds sutured.	...	...	Pericarditis and pleuritis.	Died two days later.
4	Bardenheuer ³⁷ 1901	.....	Stab wound.	.....	L. V.: sutured.	...	...	Pericarditis and pleuritis.	Died ten days later.
5	Barth ¹ 1901	1 1/2 hr. Chloro.	Knife cuts 3, in fourth left space—3 cm. from the sternum.	Resection of right 5th, 6th and 7th cartilages.	R. V.: 2 cm.; 1 silk suture.	Yes.	Yes.	Right pleura and transposed valve wounded.	Died on fourth day: pleuritis.
6	Barth ¹ 1901	3/4 hr. Chloro.	Knife cut 3 cm. within and below left nipple.	Resection of 5th and 6th cartilages.	L. V.: 0.5 cm.; 3 silk sutures.	No.	Yes.	.....	Recovered.
7	Barth ¹ 1902	None.	Stab wound in fifth left space 2.5 cm. within and 1 cm. below left nipple.	Flap of ribs—hinge external.	R. V.: 0.75 cm.; 5 sutures.	No.	No.	Pleuritis.	Recovered.
8	Baudet ²⁴ 1909	1 hr. Chloro.	Knife cut through fourth left cartilage 1 cm. within nipple line.	Flap of ribs—hinge internal.	R. V.: sutured.	No.	No.	Pleuritis.	Recovered.
9	Blake, J. A. 1907	2 1/2 hrs. Ether.	Knife cut through fourth left cartilage 1 cm. within nipple line.	Flap of 3rd, 4th and 5th cartilages—hinge internal.	R. V.: 1 cm.; 3 interrupted silk sutures; mattress suture over them.	No.	No.	Pleuritis.	Recovered.
10	Borchard ²⁷ 1901	2 1/2 hrs.	Boy fell from tree and was impaled on iron picket fence.	Incision over 5th rib.	L. V.: 1.5 cm.; on posterior side; 1 silk suture.	No.	Yes.	.....	Recovered.
11	Borzymowski ¹⁰⁰ 1902	None.	Knife wound between ensiform and left costal cartilages	Wound enlarged—resection of 4th, 5th and 6th ribs.	L. V.: apex; 2 cm.; 3 deep and 3 superficial silk sutures.	...	...	Pericarditis and pleuritis.	Died 2 days later.
12	Borzymowski ¹⁰⁰ 1903	Ether.	Wound over fifth left cartilage.	.....	3 wounds; silk sutures.	...	...	Pleuritis; discharge of silk sutures.	Recovered. Resection of third rib 6 mos. later for empyema. Died 2 days later.
13	Borzymowski ¹⁰⁰ 1903	Ether.	Knife cuts 2, over fourth left cartilage	Flap of ribs, 3rd, 4th and 5th; hinge external.	R. V.: sutured.	...	...	Pericarditis and pleuritis.	Recovered.
14	Bougle 1901	1/4 hr. Chloro.	Pistol ball in third left space; a finger's breadth from the sternum.	Flap of 3rd, 4th and 5th cartilages; hinge external.	R. V.: 2 holes; both sutured with cutgut.	No.	Yes.	Ball had passed through wall of ventricle not opening cavity. Wandering in wound.	Died 5 hours later.
15	Bruchini 1901	None.	Knife cut in fourth left space; 3 cm. outside nipple.	Flap of 2nd, 3rd, 4th and 5th ribs; hinge external.	Interarterial groove; 5 silk sutures.	...	Yes.	Pericarditis and pleuritis. Two wounds, only one sutured.	Died 112 hours later.
16	Bruchini 1901	At once. None.	Three pondard stabs in region of heart.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: 2 wounds; 1 non-penetrating; both sutured.	...	...	.....	Died on table.
17	Brenner 1901	Next day.	Knife cut over sixth left cartilage.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 7 mm.; sutured.	...	...	Heart muscle degenerated	Died on table.
18	Brezard and Morel ²⁷ 1905	Soon. Chloro.	Pistol ball (8 mm.) in third left space 2 cm. from sternum.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.: 2 wounds; entrance and exit sutured with cutgut.	No.	...	Cavity of ventricle not opened.	Died on table; hemorrhage.
19	Bufoir 1899	.....	Gunshot wound in fifth left space; .23 caliber.	.....	R. V.: 1 opening sutured.	...	...	Ventricle perforated; exit wound not sutured.	Died.
20	Cannus ²³ 1905	About 1 hr.	Pondard stab in fourth left space, a finger's breadth from sternum.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 1 cm.; sutured with cutgut.	Yes.	Yes.	Left pneumonia.	Died 22 hours later.
21	Cannus ²³ 1905	1 hr.	Knife cut in third left space.	Flap of 3rd, 4th, 5th and 6th ribs; hinge external.	R. V.: 15 mm.; sutured with cutgut.	...	...	.....	Died on table.
22	Cappelen 1896	1 hr. Ether.	Knife cut in fourth left space; midaxillary line.	Resection of 3rd and 4th ribs.	L. V.: 2 cm.; sutured.	...	...	Coronary art. found cut; was ligated.	Died 3 days later of pericarditis.

TABLE OF RECORDED CASES OF SUTURE OF THE HEART—(Continued)

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pleur.	Pericardium		
23	Capello-Cimoron ¹²³ 1901	None.	Stab wound in seventh left cartilage at margin of sternum.	Resection of 4th, 5th, 6th and 7th ribs.	R. V.: 8 sutures; wound of abdomen.	Yes.	Yes.	Heart sutures discharged in pus 15th day.	Died 2 months later; pericarditis and subphrenic abscess.
24	Carnelo, F. ²² 1904	Chloro.	Knife wound in fourth left space.	Resection of 4th and 5th cartilages.	L. V.: silk sutures.	...	Yes.	Bronchopneumonia.	Died 3 days later.
25	Carnabel 1900	2 hrs. Ether.	Knife cut in third left space 3 cm. from sternum.	Resection of 4th and 5th cartilages.	R. V.: 2 cm.; 3 catgut sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 4 days later.
26	Dolsett ²⁷ 1906	1 hr. Eucain.	Knife wound in fifth left space within nipple line.	Resection of 4th and 5th cartilages.	R. V.: 1.5 cm.; 3 silk sutures.	No.	Yes.	Heart stopped; revived by massage.	Died 7 days later. Peritonitis and mediastinitis.
27	Durante ²⁷ 1897	.....	Wound in heart region.	.....	R. V.: sutured.	...	...	.....	Died some days later.
28	Duval ²⁴ 1906	.....	Knife cut in fifth left space, 8 to 10 cm. from sternal border.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.: 1.5 cm.; 2 interrupted sutures.	...	...	Heart stopped; warm salt solution injected into L. V.; it beat. Cold solution injected and heart suddenly stopped.	Died on table.
29	Farina 1896	Chloro.	Knife cut at upper border of sixth left rib near sternum.	Resection of 5th, 6th and 7th cartilages.	R. V.: 6 mm.; 3 silk sutures.	No.	...	Bronchopneumonia.	Died 5 days later.
30	Fischer, E. ⁸⁰ 1907	1 hr. Ether.	Knife cut in third left space; another over second rib.	Wound enlarged; excision of 3rd and 4th cartilages.	L. V.: silk sutures; coronary vein ligated.	Yes.	Yes.	Pericarditis.	Died 20 hours later.
31	Fontan 1900	6 1/4 hrs. Chloro.	Six scissors wounds between third and seventh left ribs.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.: 12 mm.; continuous catgut sutures.	No.	No.	Pleuritis.	Recovered.
32	Fontan 1901	2 hrs. Chloro.	Knife wound in fourth left space, 0.5 cm. outside nipple.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.: 6 mm.; continuous catgut sutures.	No.	No.	Pleuritis and emboli in right lung.	Died 5 months later from brain abscess.
33	Fournestroux, de ^{17 21 27} 1905	1/2 hr.	Knife cut a finger's breadth outside left nipple.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: 3 silk sutures.	...	Yes.	.....	Recovered.
34	Fournestroux, de ^{17 21 27} 1905	10 mins. Chloro.	Knife cut in fourth left space.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: and R. V.: inter-ventricular groove; 3 silk sutures.	...	...	Necropsy. Both ventricles opened by wound through septum.	Died on table.
35	Fummi 1898	Some hrs. Slight.	Knife cut under left nipple.	Resection of 5th rib.	L. V. and apex; non-penetrating; 1 stitch.	...	...	Pleuritis.	Recovered.
36	Gaudemet ²³ 1905	1 1/4 hrs. Chloro.	Knife cut in fifth left space 5 cm. from median line.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 4 mm.; 3 catgut sutures.	Yes.	Yes.	Clot found in tricuspid valve; probable cause of death.	Died 24 hours later.
37	Gentil, F. ^{27 33 53 63} 1901	10 hrs. Chloro.	Wounds 3, in fourth left space.	Flap of 5th and 6th cartilages; hinge internal.	L. V.: 1 cm.; sutured with silk.	Yes.	Yes.	.....	Died 5 days later.
38	Gentil, F. ^{27 33 53 63} 1903	5 hrs.	.....	.....	R. A.: 1 cm.; sutured.	...	...	.....	Recovered.
39	Gentil, F. ^{27 33 53 63} 1901	.....	.....	Flap of ribs; hinge external.	R. V.: sutured.	...	...	Pericarditis; syphilis.	Died 17 hours later.
40	Gerzen ³⁷ 1902	Chloro.	Stab in fifth left space.	Resection of 5th and 6th ribs.	L. V.: sutured.	No.	Yes.	Pericarditis, pleuritis, nephritis, hemorrhage.	Died 53 days later.
41	Gerzen ³⁷ 1902	Chloro.	Cut under left costal arch.	Resection of 5th, 6th, 7th, 8th and 9th cartilages.	R. V.: 2.5 cm.; 4 sutures.	Yes.	Not opened.	Pericarditis and pleuritis.	Died 23 days later.
42	Gibbon ⁷⁷ 1902	3 1/2 hr. Chloro.	Knife cut through fourth left cartilage.	Resection of 3rd cartilage.	R. V.: 1.5 cm.; 1 suture; not completed.	...	...	.....	Died on table.
43	Gibbon ⁷⁷ 1905	About 3 hrs. Ether.	Knife cut dividing fourth left cartilage.	Resection of 4th cartilage.	R. V.: 1/2 to 3/4 in.; 6 catgut sutures.	Yes.	Yes.	Pleura not wounded.	Recovered.
44	Giordano ¹⁰ 1898	1/2 hr. None.	Knife cut in second left space.	Flap of 3rd and 4th ribs; hinge below.	L. A.: 2 cm.; 4 silk sutures.	No.	Yes.	Left pleuritis. Right pulmonary abscess.	Died 18 days later.
45	Giordano ¹⁰ 1902	.....	Knife cut in sixth left space.	Flap of 4th and 5th ribs; hinge internal.	L. V.: 2 cm.; 2 silk sutures.	No.	Yes.	.....	Died 1 1/2 hours later.
46	Giordano ¹⁰ 1902		Knife cuts in 3rd, 4th and 5th left spaces near nipple.	Flap of 4th and 5th ribs; hinge external.	L. V.: 2 cm.; 2 silk sutures.	No.	Yes.	Autoplastic operation required to close the opening.	Recovered.

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TABLE OF RECORDED CASES OF SUTURE OF THE HEART—(Continued)

No.	Operator and Year of Operation.	Time between Wounding and Operation, Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium	Pleura.		
76	Manteuffel ²³ 1903	9 hrs. Ether.	Pistol ball, 5 mm. in fourth left space.	Resection of 4th, 5th, 6th and 7th cartilages.	R. V.; went through anterior wall and lodged in posterior, where it could be felt. Incision and removal. Silk sutures closed both wounds.	No.	Yes.	Pericarditis; aspirated.	Recovered.
77	Marion 1898	2 hrs. Ether.	Pistol ball, fourth left space, 3 cm. from sternum.	Resection of 6th and 7th cartilages and part of sternum.	R. V.; perforated. Anterior wound sutured.	...	...	Ball did not open pericardium.	Died on table.
78	Maselli 1900	1½ hrs. None.	Knife cut 1 cm. within and below left nipple.	Resection of 6th rib.	L. V.; near apex; several sutures.	No.	Yes.	...	Died 12 hours later.
79	Manclair ¹⁷ 1903	None.	Wound of left breast 3 cm. from sternum.	Flap of 3rd and 4th ribs.	Heart wound; 3 sutures.	Yes.	Yes.	...	Died 24 hours later.
80	Mignon and Sieur 1901	1 hr.	Knife cut in fourth left space 2 finger breadths from nipple.	Resection of 4th, 5th and 6th cartilages.	R. V.; 1 cm.; silk sutures.	Yes.	Yes.	...	Died 2 hours later.
81	Miles ¹⁴⁵ 1902	About 2 hrs. Chloro.	Knife wound in fifth left space.	Resection of 6th rib.	R. V.; 15 mm.; 1 deep and 3 superficial silk sutures.	Yes.	Yes.	Anemia.	Died 15 hours later.
82	Miles ¹ 1903	About 1 hr. Chloro.	Knife cut in fourth left space near sternum.	Resection of 4th cartilage.	R. V.; 1 cm.; 1 deep and 2 superficial silk sutures.	No.	Yes.	Pericarditis.	Died 7 days later.
83	Morrell ¹⁰ 1903	21 hrs. Chloro.	Pistol ball, 8 mm. caliber, in sternum opposite fourth cartilage.	Cut through sternum.	R. V.; 1 opening; 1 catgut suture.	Yes.	Yes.	Ball is found in cavity of R. V.	Died 19 hours later from embolism?
84	Musumeci ³⁰ 1905	Soon. Ether and Chloro.	Knife cuts in fourth and fifth left spaces.	Flap; hinge internal.	R. V.; sutured; suture of 3 intestinal wounds also.	No.	...	...	Died 13 hours later.
85	Nann 1900	.....	Knife cut in third left space, 4 cm. from sternum.	Resection of 2nd, 3rd and 4th cartilages.	R. V.; 2 cm.; 2 interrupted sutures.	No.	Yes.	Pericarditis and pleurisy.	Died 4 days later.
86	Neumann ²⁰ 1905	.....	Stab below left costal arch.	Resection of 7th to 4th cartilages.	R. V.; sutured with pericardium.	...	...	Hemorrhage.	Died ¾ hour later.
87	Niehl 1899	1½ hrs.	Knife cut in fourth left space midway of sternum and nipple.	Resection of 4th and 5th cartilages.	R. V.; near apex; sutured.	...	...	...	Died 12 hours later.
88	Nietert 1901	2 hrs. None.	Knife cut in fifth right space at sternum.	Resection of 5th and 6th cartilages. Pleura not opened.	R. V.; ½-inch; 3 interrupted silk sutures.	Yes.	Yes.	Anuria; death from shock and pericarditis.	Recovered.
89	Nietert 1901	More than 10 hrs. Chloro.	Knife cut in sixth left space within nipple line.	Flap of 5th and 6th ribs; hinge internal.	R. V.; ½-inch; 2 sutures; may not have penetrated.	...	...	...	Died next day.
90	Nimier ²⁷ 1905	25 mins. Chloro.	Knife cut in fourth left space 1 cm. from sternum.	Flap of 4th, 5th and 6th ribs; hinge external.	R. V.; 1 cm.; 4 catgut sutures; pleura not opened.	Yes.	Yes.	...	Died on table.
91	Ninni 1898	At once. None.	Knife cut in fifth left space.	Flap of 4th and 5th ribs; hinge internal.	L. V.; admitting finger; 3 stitches.	Yes.	Yes.	Pericarditis and pleurisy.	Died 3 days later.
92	Ninni 1901	1½ hrs.	Knife cut in third left space midway of sternum and nipple.	Resection of 4th and 5th cartilages and part of sternum.	R. A.; 3 sutures.	Yes.	Yes.	...	Recovered.
93	Noll 1903	1½ hrs.	Pistol ball, 7 mm. in first left space.	.....	L. V.; wound sutured.	Yes.	Yes.	Pleurisy.	Recovered.
94	Pagenstecher 1899	16 hrs. Ether.	Knife cut below and within left nipple.	Resection of 5th cartilage.	L. V.; 3.5 cm.; 3 deep sutures; 1 superficial.	No.	Yes.	Pleurisy.	Recovered.
95	Pagenstecher 1901	2½ hrs.	Knife cut in fourth left space, 1 cm. from sternum.	Flap of 4th and 5th cartilages; hinge internal.	Left coronary artery divided; both ends secured with sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 4 days later.
96	Paravecchio 1898	8 hrs. Chloro.	Knife cut in fifth left space.	Resection of 5th rib.	L. V.; apex; 3.5 cm.; 4 sutures.	No.	No.	...	Recovered.
97	Parozzani 1897	5 hrs. None.	Knife cut in seventh left space in nipple line.	Flap of 5th, 6th, 7th and 8th cartilages; hinge internal.	L. V.; near apex; 2 cm.; 4 silk sutures.	No.	No.	None.	Recovered.
98	Parozzani 1897	1½ hrs. None.	Knife cut in third left space; nipple line.	Flap of 4th, 5th and 6th ribs; hinge internal.	L. V.; 15 mm.; 2 sutures.	No.	No.	Necropsy. Wound of interventricular wall.	Died 18 hours later.
99	Pecori ⁴⁴ 1903	.....	Knife cut in fifth left space within nipple line.	Flap of 5th and 6th ribs.	R. V.; sutured; first core out; others placed farther from margin.	No.	No.	Hemorrhage.	Died on table.

No.	Name	Time	Operation	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: sutured.	Yes.	Yes.	Hemorrhage in right pleura.	Result
100	Picone ²¹ 1901	Very soon.	Knife cut two finger breadths below left nipple.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: sutured.	Yes.	Yes.	Hemorrhage in right pleura.	Died 2 days later.
101	Ponara 1902	None.	Knife cut in sixth left space below nipple.	Resection of 5th and 6th ribs; hinge external.	L. V.: near apex; silk sutures.	No.	Yes.	Pericarditis and pleuritis.	Died 73 hours later.
102	Quen ²³ 1906	8½ hrs. Chloro.	Knife cut in third left space.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.: 2 interrupted sutures.	No.	No.	Syncopal on table; traction on tongue revived him.	Recovered.
103	Ramoni 1899	½ hr. Chloro.	Ponard stab over fifth left cartilage, 2 cm. from sternum.	Flap of 4th and 5th ribs; hinge below.	R. V.: 2 wounds; 1 suture in one; 2 in the other.	Yes.	Yes.	.....	Recovered.
104	Rehn ⁶ 1893	More than 24 hrs. Chloro.	Knife cut in fourth left space, 2 cm. from sternum.	Resection of 5th cartilage.	R. V.: 15 mm.; silk sutures.	Yes.	Yes.	Pleuritis.	Died 2 days later.
105	Rehn ⁶ 1903	8½ hrs. Chloro.	Knife cut in fourth left space.	Flap of 4th and 5th ribs; hinge internal.	R. V.: 10 silk sutures.	No.	No.	.....	Died next day.
106	Rehn ¹⁹ 1902	Chloro.	Knife cut in fourth left space 1 cm. within nipple line.	Resection of 4th and 5th ribs.	L. V.: apex; 4 interrupted catgut sutures.	.....	.....	.....	Died 72 hours later.
107	Ribbins y Ribbins ²⁵ 1905	About 1 hr.	Stab in third left space, 3 cm. from sternum.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.: 1 cm.; 3 sutures.	Yes.	Yes.	.....	Recovered.
108	Riche ¹⁵ 10 24 25 1902	2 hrs. Chloro.	Knife cut in fourth left space, midway of midline and nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 5 mm.; sutured.	No.	No.	None.	Died on table.
109	Riche ¹⁵ 10 24 25 1904	1½ hrs. Chloro.	Pistol ball, 8 mm. in fifth left space, within and below nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.: 2 wounds; catgut sutures in both.	.....	.....	.....	Recovered.
110	Rosen 1899	At once. None.	Knife cut in fifth left space.	Resection of 5th, flap of 6th, 7th and 8th; hinge below.	L. V.: base; 1.5 cm.; 1 suture.	Yes.	Yes.	Ball went through stomach and lodged in diaphragm.	Died 24 hours later. Peritonitis.
111	Rothfuchs ²⁶ 1905	.....	Bullet.	Resection of 4th and 5th ribs.	L. V.: perforated; catgut suture in both wounds.	.....	.....	Gangrene of border of lung.	Died 53 hours later.
112	Savariand ²³ 1902	Chloro.	Knife cut in fifth left cartilage 3 cm. from sternum.	Flap of 4th and 5th ribs; hinge external, not opening pleura.	R. V.: near apex; 3 sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 11 days later.
113	Savariand ²³ 1904	Chloro.	Knife cut below and within left nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 3 catgut sutures.	No.	No.	Pericarditis and pleuritis.	Recovered.
114	Schachowski ³⁷ 1903	.....	Knife cut in sixth left space, near nipple line.	Resection of 5th and 6th cartilages.	R. V.: 1.5 cm.; 6 sutures.	Yes.	.....	Operator thought ball went through interventricular septum without opening a ventricle.	Recovered.
115	Schubert ²² 1904	¾ hr. Chloro.	Bullet in fourth left space.	Resection of 4th rib.	Two wounds in heart; 1 anterior, 1 posterior, both sutured with catgut.	.....	.....	Pericarditis and pleuritis.	Recovered.
116	Schwerin 1903	¾ hr.	Sharp pointed body entered fourth left space.	Resection of 4th and 5th cartilages.	R. A.: 3 silk sutures.	Yes.	Yes.	Pericarditis, pleurisy and pneumonia.	Recovered.
117	Schnitz ³⁷ 1904	Chloro.	Stab in sixth left space in nipple line.	Flap of sternum and 4th, 5th and 6th cartilages.	L. V.: 3 cm.; 6 sutures.	No.	Yes.	Pericarditis.	Died 3 days later.
118	Smith ¹⁴ 1904	½ hr. Ether.	Knife cut in fourth left space, 2 cm. from sternum.	Resection of 4th and 5th ribs and part of sternum.	R. V.: continued silk sutures.	No.	Yes.	.....	Died 7 days later.
119	Soave ²⁹ 1907	Very soon. Chloro.	Knife cut in fifth left space, 4 finger breadths from sternum.	Flap of 4th and 5th ribs; hinge internal.	R. V.: silk sutures.	Yes.	Yes.	None.	Recovered.
120	Somerville ⁴⁷ 1904	55 mins. Ether.	Knife cuts in fourth and fifth spaces within nipple line.	Skin flap and operation through 4th space; not cutting ribs.	L. V.: ragged ¾ in.; 3 interrupted silk sutures.	Yes.	Yes.	None.	Recovered.
121	Stewart, F. ¹ 1902	At once. Ether.	Knife cut in fourth left space, ½ in from sternum.	.....	L. V.: ¾ inch; 6 catgut sutures.	.....	.....	.....	Died 2 days later.
122	Stewart 1904	¾ hr. Ether.	Knife cut in second left space, 1 inch from sternum.	Flap of 3rd and 4th ribs; hinge internal.	L. V.: ¾ inch; 6 continuous silk sutures.	Yes.	Yes.	Pneumonia and wound infection.	Recovered.
123	Stewart, G. D. 1902	1 ¼ hrs. Chloro.	Knife cut in 5th space; ½ in. left nipple line.	Fifth rib resected.	L. V.: ½ in. sutured; 6 stitches.	Yes.	Yes.	Pericarditis and pleuritis.	Died 2½ days later.
124	Steyner ³⁷ 1903	Chloro.	Stab about fifth rib near sternum.	Resection of 4th and 5th ribs.	R. V.: 4 sutures.	Yes.	Yes.	.....	Recovered.
125	Stude 1904	About 2 hrs.	Knife cut in chest.	Flap of sternum and left 4th and 5th cartilages; hinge on right.	L. V.: 2.5 cm.; sutured.	.....	.....	Death due to pneumonia.	Died on table.
126	Sultan, C. ¹¹ 27 1905		Two stabs in fifth left space, 2 cm. within nipple line.	Flap of 5th, 6th and 7th ribs; hinge external.	L. V.: 7 mm.; 4 sutures.	No.	No.	Necropsy: one liter of blood in pleura, R. V. found wounded.	Died 45 hours later.

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Original Articles

A DIPHTHERIA EPIDEMIC

ITS BEARING ON THE QUESTION OF BACILLUS CARRIERS,
ANIMAL CARRIERS, AND THE NECESSITY OF MORE
STRICT QUARANTINE REGULATIONS *

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After an interval of several years of freedom from diphtheria, the first case developed at the Connecticut Hospital for Insane early in April, 1907. From then until May 15, 1908, there occurred ninety-two cases, fifty-seven of which were in employes and thirty-five in insane patients. During this period the throats of 4,081 healthy individuals were examined, with the result that ninety-five (2.08 per cent.) revealed the presence of the Klebs-Loeffler bacillus, so that the total number of people under quarantine was 187.

SOURCE OF INFECTION

The etiology in the greater number of cases can probably be ascribed to bacillus carriers. The source of infection in the first case can undoubtedly be traced to a visitor, the second case likewise possibly arose from an unknown outside source, but the epidemic was undoubtedly fostered by bacillus carriers, human and animal.

In the first case the patient developed a sharp attack of tonsillar diphtheria a few days following a visit from a relative who at the time was complaining of a severe cold and sore throat. This patient was at once quarantined in the isolation hospital along with a patient sleeping in the next bed who was found to be a bacillus carrier. The dormitory in which they slept was fumigated, while the entire ward, including walls and furniture, was thoroughly cleaned with soap and water and then treated with a corrosive sublimate solution. Identical preparations were taken throughout the epidemic in regard to fumigation of rooms, clothing, etc., of those affected with the disease. Each room was sealed and fumigated with formaldehyd gas and then thoroughly cleaned. Whenever others occupied the same room they were given an immunizing dose of antitoxin—500 to 1,000 units—a bichlorid of mercury bath, and their clothing was thoroughly fumigated. The same day prophylactic cultures were taken from the throats of all fellow patients and attendants, resulting in the isolation of all found to be bacillus carriers. Patients were not discharged from the isolation hospital until they had had three successive negative cultures up to Aug. 15, 1907. After this date four successive negative throat and two nose cultures were insisted on.

The third case developed in another building, North, just one month following the discharge of the above cases, in a nightwatch who had in no way come in contact with the former patients. It is possible that this case, like the first, had an outside origin; on the other hand, a possible source of infection was the patient in Case 4. Another ten days and Case 8 developed in a kitchen maid working with patients 4 and 5.

It would be unprofitable as well as wearisome to detail each individual case and its relation to others. A careful analysis sometimes reveals a tangible source of infection, i. e., contact with cases before discovery of disease or with carriers, while in others it was impossible to trace any direct or indirect connection.

It was noteworthy that the Middle and South Hospitals were remarkably free from the disease, the former having four cases and the latter two cases, although patients from the Middle Hospital ate in the congregate dining-room.

There was an interval of one month between the discharge of the first case from quarantine and the onset of Case 2. Then there was an interval of two months, from the latter part of September to November 24, when there were no new cases, and another interval of freedom for one month in April, 1908, before the final subsidence of the disease in May, 1908.

During the twelve months ninety-two patients were quarantined with clinical diphtheria. Ninety-five apparently healthy individuals whose throats showed the presence of Klebs-Loeffler bacilli were also isolated.

In the ninety-two cases of diphtheria forty-four of the patients showed distinct membranes, the remainder being catarrhal. There were no fatal cases. All yielded promptly to the antitoxin. It was noteworthy that antitoxin had little or no effect in clearing the throat of the bacilli, either in the clinical cases or in the bacillus carriers, as large doses were given for this purpose without any effect. Many of those isolated as the results of prophylactic cultures presented congested throats.

Hypertrophied tonsils were noted thirty-two times in the 187 individuals isolated, and it was very difficult to free these patients from the germs. The little crypts and irregularities in a hypertrophied tonsil afford a good hiding place as well as breeding ground for micro-organisms, hence these patients often become living culture tubes and a menace to the health of the individual and the community.

After November, when a case of diphtheria developed, cultures were taken from all persons in that ward at once, then an interval of several days was allowed to elapse before the process was repeated. Astonishing results were often obtained from these second cultures, more bacillus carriers frequently being brought to light at this time than at the first. In several instances of clinical diphtheria the first culture was negative, owing in all probability to the faulty technic of taking the culture, to the temperature of the incubator, or to overgrowth of other organisms.

Many times the bacilli persisted in the nose long after they disappeared from the throat, and in some cases in which it was difficult to obtain throat cultures the diagnosis was made from nose cultures alone. The swab was passed up the nose as far as possible without violence—a method that might be used with advantage in cases of young children from whom throat cultures are often obtained with difficulty.

The average length of time spent in quarantine for cases of diphtheria was 20.8 days. Two cases remained over 50 days, the longest time being 80 days.

The average length of time for the bacillus carriers was greater, 30.2 days. The germs persisted in the throats more than 50 days in twelve instances, including three cases of 106 days, 107 days and 111 days, respectively.

In a population composed almost entirely of adults no conclusions could be drawn from the age of those affected. Two of the patients were under 5 years of age, while fifty were between the ages of 20 and 30 years, seventeen between 30 and 40, nine between 40 and 50, four between 50 and 60, five between 70 and 80, and one over 80 years. While the disease is no respecter of age, it shows a predilection for those under 30 years.

* From the Laboratory of the Connecticut Hospital for Insane.

PRESENCE OF KLEBS-LOEFFLER BACILLI IN SUPPOSEDLY
NORMAL INDIVIDUALS

Appreciating that the possible source of infection might be bacillus carriers, we made wholesale prophylactic cultures, wherever there was any chance of contact, involving entire wards and buildings. This afforded a splendid opportunity to judge of the percentage of cases of normal persons infected with Klebs-Loeffler bacilli at the time of an epidemic. Four thousand and eighty-one prophylactic cultures were taken, 2.08 per cent. of which showed diphtheria bacilli.

According to a report of the Massachusetts Board of Health¹ persons not exposed to the contagion revealed the germ on cultures in 3 per cent. of cases, but in those exposed to the disease the percentage was from 8 to 50. Park² says in the examination of the throats of 330 healthy people he discovered Klebs-Loeffler bacilli in 9.7 per cent. of cases, but in 7.3 per cent. of these cases the bacilli were attenuated or nonvirulent.

Dr. E. Burvill Holmes³ of Philadelphia states that, in the Municipal Hospital, of cultures taken from nurses and physicians (eighty to ninety people) caring for diphtheria patients, only two showed the presence of diphtheria bacilli. Both were new nurses and went down with the disease the day following the report. His experience has led him to the belief that few really healthy individuals harbor the germ.

Our experience of 2.08 per cent. of bacillus carriers, found by prophylactic culturing during the epidemic, showed that the majority of these patients had considerable congestion of the throat, and, of course, it would be impossible to say how many of these individuals would have developed the disease if left without treatment (antitoxin), which was administered as soon as the carrier was quarantined.

Inoculation for testing the virulence of the organism was only made in six instances, and this at the end of the epidemic. The organisms were isolated by means of Dr. North's special medium, then grown in bouillon for forty-eight hours. The dose given was 0.2 per cent. of the body weight of the test animal, because larger doses of a so-called non-virulent organism may produce death, showing that the difference in virulence is one of degree only.

Germs from four patients presenting no clinical symptoms of the disease were selected for the virulence test. The diphtheria bacilli from two of these throats were rapidly fatal to the guinea-pigs, while those taken from the other two caused only a temporary indisposition in the test animals, plainly showing that while their virulence was attenuated they had some toxic properties.

In another instance the germs tested were obtained from the throat of a little boy presenting no clinical symptoms other than enlarged ragged tonsils. The inoculated guinea-pig died in forty-six hours. This lad's sister had had a typical attack of tonsillar diphtheria. Another inoculation was made with bacilli isolated from a case of clinical diphtheria in which the bacilli persisted in the throat for one month after the subsidence of clinical symptoms. The guinea-pig in this instance promptly succumbed. From this it will be seen that the virulence of diphtheria bacilli vary, so that if it had been feasible to make tests of virulence in all cases of bacilli found by means of prophylactic cultures

the number isolated might possibly have been decreased or their time in quarantine diminished.

This, however, was not possible, for it taxed the capacity of the laboratory to keep up with the prophylactic cultures taken in the hope of segregating all persons found infected. Consequently it was considered the wisest course to find and isolate every individual carrying Klebs-Loeffler bacilli in their throats or noses, considering every such individual a menace to the health of the institution whether presenting clinical symptoms or not. This course would neither be necessary nor wise in private practice, for the conditions do not require it and it would cause unnecessary hardship and apprehension. It would, however, seem the only rational procedure to adopt in large institutions of the character of the Connecticut Hospital for the Insane, in almshouses, jails or schools, the only alternative being the immunization of all inmates, which would necessitate probably at least two or three doses of antitoxin all around before the disease could be exterminated. This would involve a large outlay of money with 2,500 patients and 500 employés, but would undoubtedly eradicate the disease; therefore, would justify the expenditure in case the epidemic could not be controlled by proper quarantine regulations. Immunization could probably be adopted in smaller institutions, as was done at Saranac Lake.⁴

One of the nurses at the isolation hospital caring for the diphtheria patients had a mild attack of catarrhal diphtheria two weeks after the administration of 1,000 units of antitoxin. Aside from this one instance, the disease did not develop in those immunized, of whom there were many.

Three months after the subsidence of the epidemic it seemed advisable to ascertain if there were any permanent bacillus carriers among our population. To this end 506 cultures were taken from patients and employés in different buildings, resulting in our finding Klebs-Loeffler bacilli in six patients (1.1+ per cent.), three of whom had been under quarantine as bacillus carriers in the previous epidemic but none of whom had suffered from angina. Three patients showed a fairly large number of Klebs-Loeffler bacilli in the throat cultures, but the others contained very few. All were acid producers in glucose bouillon. Pure cultures from these six cases in every instance proved harmless to guinea-pigs.

The number of bacillus carriers was evidently much reduced (from 2.08 per cent. to 1.1+ per cent.) since the epidemic, all of the latter being non-virulent, while of the five tested during the epidemic three were virulent. It seems to me that this justifies the conclusion that about half the bacillus carriers during the epidemic harbored virulent bacilli, while the remainder probably were harmless and might have been saved the inconvenience of quarantine had our laboratory force been sufficient to permit us to isolate the bacilli and test their virulence in every instance.

NUMBER OF NEGATIVE CULTURES FOR RELEASE FROM
QUARANTINE

Until August 15, as was usual, we required three negative throat cultures for discharge from quarantine. The occurrence of other cases in persons in contact with those released from isolation indicated clearly that three consecutive negative cultures were not sufficient to

1. Report Mass. Assoc. Board of Health, July, 1902.

2. Pathogenic Bacteria and Protozoa, New York and Philadelphia, 1905, p. 197.

3. N. Y. Med. Jour., 1908, vol. lxxxvii, p. 534.

4. Brown, Allen and Lupton: Am. Jour. Med. Sci., 1907, cxxxiii, 297.

prevent the spread of the epidemic. Careful comparison of results of cultures shows clearly the wisdom of this apparently severe restriction, since in many instances a positive culture was obtained from either nose or throat on the fourth day following three negative cultures, the bacilli persisting often for more than three weeks. In addition, we found that in twenty-five patients who had been discharged from isolation, one having been isolated over two and a half months, bacilli were again present when prophylactic cultures were made. This, of course, may have been a fresh infection, which would show the greater susceptibility of those once suffering from the disease. On the other hand, it is possible that in some crypt of the tonsil some germs may have escaped even four carefully taken and carefully examined cultures.

The uselessness of attempting to combat an epidemic by accepting two negative cultures as a passport, which is the regulation laid down by the Connecticut State Board of Health, is demonstrated by the fact that in fifty-five cases the cultures were positive and remained positive, on an average, twenty-three days after they had been negative for three days. In one instance ninety-six days elapsed before four negatives were obtained. The epidemic at Willard State Hospital,⁵ which raged from 1899 to 1904, bears testimony to the futility of attempting to extinguish an epidemic as long as patients are released from quarantine on two negative cultures.

ANIMALS AS A SOURCE OF INFECTION

The fact of the persistence of the disease in spite of the elaborate and careful methods of fumigation and isolation led to the suspicion that there was some source of infection other than human carriers, so we turned our attention to the rats.

On March 5 six rats were shot at the mouth of the sewer which received the waste from the isolation hospital. Cultures were taken from the throats, each paw, tail, and fur covering abdomen of the animal. All of these cultures showed rank growths composed of many varieties of organisms, but one from the fur and two from throats presented many organisms, which in their morphology and staining reaction could not be distinguished from the Klebs-Loeffler bacillus. On March 12 nineteen cultures were taken from the sewage itself, resulting in similar growths to the above. All these cultures showed suspicious bacilli, but three undoubtedly contained Klebs-Loeffler bacilli. This in spite of the utmost vigilance in the disinfection at the isolation hospital, where all burnable waste was disposed of by fire, and everything else was supposed to be disinfected by bichlorid of mercury, or phenol (carbolic acid) before passing into the sewer.

Two days later ten cultures were made from a cat which was seen to frequent the vicinity of the sewer, with a positive result from cultures from fur of tail and throat. Twelve more cultures made from three rats gave one suspicious and one positive culture. The sewage was undoubtedly contaminated from some unknown carelessness at the isolation hospital. The rats became infected from frequenting the sewer pipe, and then in turn might have consorted with the house rats, or the cold weather may have driven many of them into the buildings themselves, in this way distributing the bacilli by contact with clothing and articles of daily use, thus completing the vicious circle.

Another possible avenue of infection was through the cats who often went hunting rats about the sewer, returning to the buildings when they were weary making a sort of travesty on the old rhyme of "The House That Jack Built." The isolation hospital infected the sewer; the sewer infected the rats; the rats infected the cats; and the cats infected the people.

Another point favoring the animal-carrier supposition was that the buildings farthest from the sewer suffered least from the disease, and the Farm House and Silver Mine Buildings, a mile or more away from the Main Hospital, were entirely exempt. With renewed vigilance at the isolation hospital, and a concerted effort at the extermination of the rats and cats, with warmer weather and consequent lack of incentive for the rats to seek shelter in the buildings, the epidemic slowly subsided.

Two cases of diphtheria were recently reported, undoubtedly due to a pet dog that was discovered to be suffering from the disease. Another instance was brought to my notice of a house epidemic in which three cases were due to a pet cat which slept with the children, cultures from the cat's throat showing almost a pure culture of Klebs-Loeffler bacilli. In the *Medical Record*, Jan. 18, 1908, in a letter to the editor, Dr. William B. Meany, of New York, calls attention to four cases of diphtheria contracted from a pet cat, also to a case supposedly transmitted by a chicken brought from an infected farm.

One must also think of the *Cimex lectularius* (bed-bug) as a disseminator of germ diseases. No matter how thorough may be your quarantine, it is impossible to restrict the movements of these pests when present, and they may carry the bacteria from room to room or house to house.

COMPARATIVE VALUE OF THE NEISSER AND LOEFFLER STAINS

So much depends on the bacteriologic report, and so much trouble results from incorrect diagnosis that great care must be exercised in this work. In the report of the epidemic, lasting four years at Willard Hospital, New York, they were able to make a diagnosis on cultures grown from six to nine hours, and found smears directly from swabs of no value. In my experience, cultures grown less than twelve hours have proved of doubtful value. In plates for the isolation of pure cultures, I have found it almost impossible to pick the colonies of Klebs-Loeffler bacilli under twenty-four hours, while thirty-six hours give a greater number of successful findings. The findings from smears made directly from swabs, using the Neisser stain, have, with few exceptions, been corroborated by subsequent cultures, giving us a rapid method of diagnosis which as a time saver to the patient more than compensates for the extra time and care required in searching the slide. Often the time required is the same as for examinations of a culture. When, however, the organisms are few in number, it may necessitate a search of one-half to three-quarters of an hour.

To the general practitioner, where time is an item, with a membrane in the throat, the diagnosis can usually be made directly from the swab, thus giving the patient the advantage of from twelve to twenty-four hours, which is frequently of the utmost importance. Out of nineteen diphtheria cases in this epidemic in which the swab method was adopted, the diagnosis from the swab was negative only twice when subsequent cultures proved

5. Russell and Salmon: Report of an Epidemic of Diphtheria in the Willard State Hospital. Sixteenth Annual Report N. Y. State Commission in Lunacy, October, 1904.

positive. One of these negative results was in a child 4 years old from which it was almost impossible to get any exudate on the swab, while in the other case the patient had little membrane.

Dr. Holmes³ states that after the examination of many smears from the nose and throat of patients admitted to the Municipal Hospital, "My conclusion is that they are of great value, indeed, in experienced hands as valuable as cultures, because even the latter, owing to careless culturing for the most part, do not always reveal the true state of affairs." "Of special value are they when an immediate diagnosis is required." Dr. Holmes calls attention to the characteristic grouping of diphtheria organisms in smears which I have often noticed. He says, "The grouping of the bacilli, rather than the morphology, is the more valuable aid in the identification of the bacillus in both smear and culture." "In looking over a smear containing the bacilli, they will be found in most part lying together in groups of two or more, paralleling each other or radiating from each other like the spokes of a wheel."

This grouping I have found of great value, especially where the polar staining and granules are not sharply defined. There is a microscopic picture which, by experience, strikes the eye with certain conviction, even if the organisms are not numerous.

No account was kept of the number of times when the swab was negative, substantiated by subsequent negative cultures, but they were numerous.

"A small percentage of virulent bacilli fail to take the Neisser stain." This statement by Park² led to a comparative test of the Neisser and Loeffler stains in the first 700 cultures examined. As a result of this test, it may be said that the Neisser stain never failed to differentiate in cases differentiated by the Loeffler stain.

The Neisser stain, furthermore, had distinct advantages: (a) there is no danger of over or understaining; (b) it greatly facilitates microscopic examinations, reduces eye strain, and is conducive to more rapid and accurate work, which is a matter of considerable importance when a single operator must examine from 50 to 125 specimens in a single day; (c) it can be satisfactorily used in the examination of smears made directly from swabs, because the exudate is decolorized and therefore can not befog the bacilli; and (d) the bacilli appear more numerous both in smears and cultures. Latterly, we have frequently used the No. 1 solution of Neisser without No. 2 and with good results.

SUMMARY

1. The chief source of infection in this epidemic were latent cases (bacilli carriers), rats and cats.
2. One negative throat culture is insufficient for diagnosis.
3. Two and even three successive negative throat and nose cultures do not constitute sufficiently strict quarantine regulations to prevent the spread of diphtheria.
4. In institutions in which large numbers are congregated, at least four successive negative cultures, including at least two nose cultures, are imperative.
5. All healthy individuals carrying bacilli in their throats should be isolated during a time of epidemic in institutions, unless wholesale immunization can be undertaken.
6. The isolation of bacilli carriers in private practice is neither reasonable nor expedient.
7. Bacillus carriers harbored the bacilli longer than did the clinical cases of diphtheria.

8. All hypertrophied tonsils should be treated as a prophylactic measure.

9. The Neisser stain has distinct advantages over the Loeffler stain, and no disadvantages.

10. Stained smears are of great value for immediate diagnosis.

11. The early diagnosis, made possible by careful culturing, permitting of early treatment with antitoxin, undoubtedly diminished the severity of the individual case, and the severity and duration of the epidemic.

12. Of healthy individuals during epidemic 2.08 per cent. were found to be bacillus carriers.

13. When no epidemic existed non-virulent Klebs-Loeffler bacilli were found in 1.1+ per cent. of healthy individuals.

14. No virulent Klebs-Loeffler bacilli were found in 506 throat cultures three months after epidemic.

15. Two weeks is the limit of immunization for 1,000 units of intoxication.

Much credit and thanks are due to the different members of the staff of the hospital for their painstaking efforts in obtaining cultures, and to Dr. Charles E. North for a formula for media which minimized the work of isolating the Klebs-Loeffler bacillus.

TEN YEARS OF AMERICAN SANITATION IN THE PHILIPPINE ISLANDS

W. E. MUSGRAVE, M.D.

MANILA, P. I.

Prefatory to any discussion of our ten years' sanitary campaign in the Philippine Islands, it is necessary to touch on the condition of affairs existent at the time of the arrival on the scene of American sanitary administrators.

CONDITIONS PRIOR TO AMERICAN OCCUPATION

At the time of the fall of Manila, Aug. 13, 1898, it is safe to say that the sanitary situation in that city was as bad as any ever maintained by a civilized nation. Not only was the condition that which would result from years of crowded habitation by a wandering and, to a large extent, ignorant people in a tropical environment, but a large amount of the sanitary work which had been done by our predecessors was of negligible value or of extremely temporary character.

Successful municipal sanitation, like successful municipal commerce or any other large community enterprise, depends on a few essentials. The chief of these is, perhaps, method of transportation. A satisfactory water-supply properly transported and distributed, together with similarly complete methods of transportation and disposal of waste, is just as vital to the institution and conduct of public health measures as are railroads and waterways for the transaction of large business enterprises.

When we arrived in Manila the water-supply was insufficient and of the poorest quality; and there were no sewers or other methods for the disposition of waste. The water-supply for Manila was obtained from the Mariquina River a few miles from the city, the pumping station being kept supplied by a small dam sloping to an intake. Some idea of the condition of this water may be imagined from the fact that there were more than 20,000 people and half as many animals living on the banks of this river above the dam and that a great public

highway passed along its banks for miles, many times crossing the stream, over which there was an enormous traffic of all kinds. The intake was guarded by a grate, and it was often necessary to remove the carcasses of dead and decomposing animals from in front of it in order that a fuller flow of water might reach the pumps.

In the absence of sewers, waste disposal of all kinds was what might be called a "family affair," most of it being deposited and allowed to decompose and disintegrate in the "back yard," after which it was used for fertilizer, or, in the case of somewhat durable material, for road construction.

Of course considerable odor was generated by the above processes, but this odor was so general and uniform that people who lived long enough in the midst of it ceased to notice it.

In addition to all this, other conditions were just about as bad as they could be. The markets were dirty beyond belief; the streets were poor and ill-kept; public bathing and toilet facilities were unknown; unkempt and decaying tropical vegetation abounded everywhere; flies and other pests were exceedingly numerous. There were practically no facilities for the care of contagious and infectious diseases, and as a result patients suffering from smallpox, leprosy and other dangerous diseases were, when very ill, kept in their homes, and when able to go about could be seen daily on the streets, in the markets and in other public places. I have many times seen persons with smallpox pustules not yet dry on their bodies attending to their stalls in the public markets, and have noticed tailors and cooks performing their duties while suffering from advanced and well-marked leprosy.

There were practically no provisions made by Spain for the care of the insane, who, together with the aged and the infirm, were left to the care of friends.

Superstition, mysticism and self-medication were rampant, and fatalism almost universal. Finally, the populace, on the whole, was ignorant, indifferent and even antagonistic toward any change in these conditions.

AMERICAN SANITATION

In addition to the very complex sanitary problem with which we were confronted on our arrival in Manila we were handicapped by the fact that our sanitarians were unfamiliar with and inexperienced in both tropical diseases and the special tropical influences which tended to disturb the public health. So much has been accomplished by attacking the problem in so many ways, and so much of the work is so recent that a satisfactory perspective is hardly possible for the contemporary historian. Much of the most important work must be judged and described by those who are to follow and whose views have not been warped by prejudices and the influence of petty details.

Great credit is due to our military medical men, to whom fell the lot of beginning the work of making Manila a habitable city. One achievement in particular deserves to be mentioned and remembered, and that is the first sanitary code for Manila, which was issued as a general order in 1898. I do not know who the author of this remarkable document was, but it met the conditions so well that it is still, with slight modifications, in force in Manila, and is one of the most satisfactory sanitary codes in existence.

Conditions of the water and sewer supply, as described above, were recognized early, and recommenda-

tions made for new construction as an essential foundation for the execution of other measures. The finances of the country were not in condition to withstand the necessary outlay. After years of appeal on the part of those concerned, however, congress, by legislation, so altered the colonial policy that the commission had at last a method for raising the funds wherewith to proceed with this great undertaking, and it is just now, after more than ten years, that a fine new sewer and water system for the city are being completed.

The new water system has its reservoir about fifteen miles above Manila on the Mariquina River, with an ample watershed entirely free from human and animal contamination and a capacity for an entirely sufficient supply of as good surface water as it is possible to get in the tropics. There are about twenty-nine miles of the new sewerage system, and, on account of the low elevation of the city, it is constructed with pumping stations somewhat after the system in use in New Orleans.

During the years while we have been waiting for these most elementary and essential improvements, much of the work of our sanitarians, like that of our Spanish predecessors, has been of a temporary and makeshift character. For example, in the collection and disposition of sewerage we have used the "septic vault" reinforced by the "pail" system. Both of these are expensive to install and to operate; they are disagreeable and even repulsive to the senses, and, above all, they offer no protection against infection, nor are they otherwise sanitary from any viewpoint.

AGENTS OF IMPROVEMENT

If now we follow more into detail what may be termed the public health spirit, we find that in general the numerous agents controlling and directing it have been wise in council, and that the results have been good and in some instances phenomenal.

Among these agents was the demand for better conditions created and kept active by those of the population who had been used to better things at home "in the States." During military days there was the obvious necessity of keeping healthy soldiers, and later the educated public demanded relief as a necessity for the continuance and fostering of business and for the protection of home life.

Next may be mentioned the work of the officials of the Bureau of Health, who have always worked faithfully, developing along the lines of duty as they saw them, and often at the expense of personal health. Indeed, in more than one instance, life has been sacrificed in the discharge of these duties.

The third most potent agency, if indeed it does not rank higher, is the Philippine Bureau of Science, which, by the published results of its original investigators, has not only pointed the way for the executive sanitarian, but has shown the educated public how to live and has made many of the previously obscure problems of tropical medicine clear to physicians the world over, which of course results in the improvement of mankind in general.

The Philippine Medical School has grown out of the influence of the Philippine Islands Medical Association, and the good to be expected from such an institution of education, through the influence of its native students, is too great to be estimated.

PERSONAL HYGIENE

When all is said about our public health measures and the wonderful effect their enforcement has had on general conditions in the islands, the greatest factor for good remains to be mentioned, and that is personal hygiene. This great influence, fostered and improved by publications, by experience and contact with trained and evenly balanced minds, has accomplished results among the better class of natives, who could not have been reached by any other method. It has been so conducted that, we might say, certain of its elementary essentials have become fashionable fads. It is by this influence, almost entirely, that the drinking of safe waters and the eating of safe foods has become a strict rule in all homes worthy of the name; and to it also is due that modification in American costume which has contributed so largely to our success in living here. Of course there are people of peculiar minds who still "do not believe in germs." Formerly they were much more numerous, but the germs have so thinned their ranks that those remaining have much less to say, and the foolhardiness of those who have gone has been such a shining example of the right of personal hygiene that the spread of its influence has been greatly increased.

PHILIPPINITIS

There are two sets of extremists in America, one supporting the idea that people can live as long and as well in the tropics as elsewhere, and the other maintaining that no white race can continue to live and propagate the species in the hot countries.

Undoubtedly both views are wrong. There is not the slightest doubt that there is a climatic (using the word in its broadest sense) influence on both the foreigner and the native in the tropics which produces that condition known among medical men as tropical neurasthenia and among the lay public as "Philippinitis." Just what it is which brings this condition about is not clear, but that it is a condition, and that it affects people regardless of race, nationality or color is an equally positive fact. The facts about it are just about as clear as they are about neurasthenia in any other country—which is not saying much. I have not the time or space to go into the subject; in even such detail as is possible, but I might add that it is never a fatal ailment, it is not contagious, and it should not keep people from going to a tropical country.

RESULTS ACCOMPLISHED

As a result of the combined influence of the forces concerned, Manila is to-day quite free from epidemics and should remain so in the future. At the time of our occupation of Manila, although the Spanish government had vaccine laboratories in operation, smallpox was epidemic and received no more attention from the officials than did any other ordinary disease. A compulsory vaccination law was passed and executed by the American military administration, and revaccination has been going on steadily for these ten years, until now the entire civilized population of the islands is protected and smallpox has been reduced from a pest to sporadic cases, which, when they occur in Manila, are cared for in the splendidly equipped new hospital built especially for this service.

Diseases transmitted by water and food, such as dysentery, cholera, typhoid fever, etc., constitute by far the most important group of diseases found in the tropics.

When we came to Manila there was practically no safe drinking water in the city, while to-day the daily output of bottled carbonated waters alone is over 50,000 bottles, and in addition to this there is a distilled water capacity of over 20,000 gallons per day. Most of these waters are used for drinking and culinary purposes. Ten years ago cold storage was very limited, and as a consequence spoiled meats and vegetables were common. In addition to all this, dirty workers and bad methods of transporting foodstuffs made bad conditions worse. It is a wonder that so many of us lived to tell the tale. From the beginning gastrointestinal and other water-borne diseases were epidemic and continued so for the first few years. Now, however, dysenteries of all kinds have been reduced to merely sporadic cases, and a case of the acute kind is rarely seen. Typhoid fever is comparatively rare, only 75 cases occurring in the last 5,000 patients admitted to my clinic in St. Paul's Hospital. Cholera epidemics have been reduced to occasional small outbreaks and should not ever again assume serious proportions in Manila.

Parasitic and other less important diseases have been reduced in like proportion in the capital.

Plague has never had a serious hold in Manila, and with the present system of cleanliness, destruction of rats and notification, there is no danger of the disease ever becoming epidemic here.

Leprosy has been common in the Philippines for centuries, and, while our Spanish predecessors, or rather one order of the Catholic Church, maintained a leprosy hospital in Manila, it was entirely insufficient for the needs of the situation, and lepers were everywhere to be seen on the streets and in public places. At the present time there is a satisfactory leper colony in good working order and the segregation of the lepers of the islands is almost completed.

I am perfectly justified in saying that in ten years America has made Manila one of the cleanest, healthiest and most attractive cities under the flag, and that if the present rate of improvement continues other American cities will have to look to their laurels.

THE TREATMENT OF SCIATICA BY DEEP PERINEURAL INFILTRATING INJECTIONS OF SALT SOLUTION*

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Nowhere in the domain of nerve pains is the agony of neuralgia, its chronicity and rebelliousness to treatment so well illustrated as in the *tic douloureux* and sciatica. Consistent with the dearth of facts concerning the etiology and pathogenesis of these clinical entities, some of the applied therapy has been unreasonable and much of it unavailing. In this paper I shall report some personal experiences with the deep intraneural or perineural injections of salt solution under pressure for sciatica, in the hope that my conclusions, added to those of others before me in the literature, may gain recognition for the underlying principle and facilitate

* Read at the meeting of the Mississippi Valley Medical Association, Louisville, Oct. 13-15, 1908.

a wider adoption of this particular method. In the choice of what seemed to me to be the best solution and technic—in short, the best method—I acknowledge that I have borrowed generously from the clinical reports, conclusions and discussions on this subject by Lange, Umber, Alexander, Schloesser, Fischler, Brissaud, Tannon and Sicard, Levy and Baudoin and Schlesinger.

My chief incentive for approaching sciatic pain conditions was the uniform success that has obtained in twenty-four cases of trigeminal neuralgia treated by me to date with seventy-eight injections of alcohol, after the manner original with Levy and Baudoin, and described in my paper¹ appearing about a year ago.

The present report concerns itself with the treatment of sixteen cases of sciatica, seven of which were purely neuralgic, as far as could be established by my diagnosis by exclusion; three were complicated by well-defined organic disease; in one there was advanced arteriosclerosis; in two the hysterical element obscured true pain values; one patient is now suspected of having an incipient spondylitis deformans, and another has developed an arthritic right hip joint.

Through the kindness of my colleague, Dr. Peter Bassoe, I treated by injection two of the patients in his wards at the Cook County Hospital.

The number of patients treated is not so very large, but varied, and serves to show that the vague designation of sciatica blankets a multitude of conditions which, if approached with caution, will reveal undoubted disease sometimes far removed from the site of sciatic nerve. Since I have been interested in this particular therapeutic phase I have seen more than twice the number of cases herein recorded in which the leg pains presumptive of sciatic neuralgia were frank expressions of something else. The four patients presenting underlying organic disease were accepted for treatment as such, and with premeditation subjected as test cases for the determination of palliative effect. If we would but conduct a better clinical examination in reference to the character and topography of sciatic pain and seek to determine an assignable cause in pelvic disease, tumors, varicosities, coprostasis, spinal cord lesions, joint affections, diabetes, syphilis, malaria, anemia, diatheses and dyscrasias, we might then reenforce symptomatic with proper causal treatment, and thus arrive at a more intelligent and rational therapeutics.

Prefatory to the histories related in greater detail, I may say that of 7 patients, 3 were completely free from pain after one injection and remained so; 1 received two treatments; 2 others received three, and the remaining 1 had five. Of the three complicated cases mentioned, the first patient, with metastatic pelvic invasion (primary carcinoma of the breast), was entirely unrelieved after two injections; the second, with bilateral neuritic pain associated with diabetes, remained free for six weeks after two injections, but then relapsed and preferred to await such improvement as would follow appropriate diabetic treatment. The third, who had severe chronic parametritis, submitted to but one injection, with only slight relief, and thereafter sought gynecologic advice and treatment. The two patients who received a single injection each with alcohol, getting but partial transitory relief, did not receive second injections, owing to reports in the literature of disaster by this method. Of the patients manifesting hysterical

symptoms, one was completely relieved after a single injection, and the other experienced such an alarming increase of pain that I was deterred from a second trial. The patients in both the spondylitic and arthritis hip cases were entirely uninfluenced, one after three and the other after two treatments.

With some regard for clearness, I shall present the treatment in its entirety under the separate headings of, 1, solutions; 2, methods; 3, syringe, needle and technic; 4, accidents, dangers and complications; 5, general results; 6, case reports (tabulated); 7, conclusions.

THE SOLUTIONS

The intraneural and perineural injection for the relief of neuralgic pain is a method neither of to-day nor of yesterday, but dates back to 1853, the time of Wood, in Edinburgh. Luton advocated the use of concentrated salt solution under the skin for tender nerve spots in 1863, and in the thirty years to follow many anesthetic and mordant solutions, including silver nitrate, ether, chloroform, carbolic acid, antipyrin, osmic acid, cocain and alcohol were indifferently used to combat and "kill" pain. Interest in hypodermic medication of every sort was revived by Schleich's work in 1895 ("Schmerzlose Operationen"), in which he included a formula for use in sciatica, viz.: 25 c.c. of a 1 per cent. cocain solution (cocain mur., 0.1; morph. mur., 0.02; sodium chlorid, 0.2; Aq. dist. ad. 1-000).

The particular references to injections for neuralgia, however, were not properly valued until Lange popularized them more than a year later.

A. SALT SOLUTIONS

The credit for the conception of the deep perineural infiltrating injection, under pressure, of a large quantity of salt solution intended to allay pain by its mechanical action, belongs to Lange of Leipsic. The literature on the subject shows that there has been some choice expressed in the formulas of salt solutions intended for injection in massive doses. Some of the French observers, Sicard, for instance, thinks that the isotonic solutions containing sodium sulphate, sodium chlorid, sodium phosphate, to which small doses of stovain have been added, are the best. Lange thinks that isotonicity makes no difference.

I have tested a variety of formulas in different cases, and feel that three may be endorsed as useful and harmless: 1, normal salt solution at body temperature injected in the amount of 80 to 120 c.c.; 2, normal salt solution refrigerated to zero centigrade, as suggested by Schlesinger,² and injected in the amount of 10 to 20 c.c.; 3, the beta-eucain salt solution at body temperature (Lange), injected in an amount of 60 to 100 c.c. These are effective beyond any and all measures with which I am as yet familiar.

B. ALCOHOL

A dependable palliative treatment in most refractory types of trigeminal neuralgia, the deep alcohol injections have been advocated for sciatica by Schloesser, who reported thirty-six cases with thirty-six cures. This, indeed, enviable achievement led to its immediate and thorough trial by Erb of Heidelberg, Brissaud and Levy and Baudoin of Paris, with negative and in not a few instances disastrous results.

1. The Methods and Technic of the Deep Alcohol Injections for Trifacial Neuralgia, THE JOURNAL A. M. A., Nov. 9, 1907 xlix, 1574.

2. Deutsch. med. Wchnschr., 1908, No. 6.

Reflecting on my own very gratifying experience with alcohol in trifacial disease, I subscribed to its use in two cases of sciatica, giving a single injection in each instance with relief, when I was dissuaded from subsequent trials by the reports of grave motor disability and amyotrophic change in the affected extremity, following its use in the hands of Erb,³ Brissaud,⁴ and Déjerine.⁵

The Schloesser method contemplates the deep intraneural injection of about 1 to 2 c.c. of alcohol in ascending strengths of 70 to 80 per cent., penetrating to the required depth of the nerve, midway between the tuberosity of the ischium and great trochanter on a line with the gluteal fold, or reaching it (if indicated) in its more superficial course lower down in the leg under the head of the fibula.

Serious objections may, I think, be justifiably entered against the use of alcohol in sciatica. As Lévy and Baudoin⁶ remark: "The sciatic is a mixed (sensori-motor) nerve and in the true sense terminal, which may not be said of the trigeminus, that has a purely sensory trunk, is rich with anastomoses to the facial and its own terminals, and thus capable of some regeneration in the presence of trauma or other disintegrating influences." For purposes of alcohol injections, then, the conditions of sciatica and tic douloureux are not comparable.

Finkelenburg, who subjected large nerve trunks in animals to a variety of solutions found alcohol markedly destructive to the medullary sheath and nerve fibers—not so cocaine or salt solution. Lévy and Baudoin injected the sciatic of a dog. Paralysis resulted and after the treatment had been persisted in for one month the animal was sacrificed. The nerve at point of injection was very much hypertrophied and for 3 or 4 cm. surrounded by a rich vascular network. Microscopically, the medullary sheath was almost completely destroyed and replaced by a small patch of granulosomatous tissue. Above the point of injections the nerve fibers appeared almost normal.

In a second experiment the middle portion of the sciatic of two guinea-pigs was exposed, and with a very fine needle a few drops of alcohol with chloroform were injected. Immediate paralysis followed, with anesthesia, and in a few days marked atrophy and pressure sores developed. The animals were sacrificed at the end of two months. Macroscopically, at site of the injection the nerve appears bulbous. Marchi stain showed the medullary sheath diseased, with a small abscess at whose level nerve filaments were spread on the posterior wall and equally degenerated. The relaxed muscles to the nerve supply show loss of volume and nuclear proliferation. Brissaud, Déjerine and Pitres⁷ have shown that the local action of alcohol on nerve tissue causes destruction of axis cylinders and myelin sheath.

Brissaud reports having given an injection of alcohol to a woman of 26 who had sciatica of gonococcic origin. The pain disappeared, but there developed a sensori-motor paralysis of the entire region innervated by the sciatic, involving chiefly the extensors of the leg. Eighteen months thereafter the sensory condition was again normal, but marked paresis continued, together with undoubted reaction of degeneration. In a second case, that of a woman aged 34, 1 c.c. of alcohol was injected. There was suppression of pain at the cost of marked motor paresis, which ten months after intervention was present together with the reaction of degeneration.

In his comment of these results so at variance with those of Schloesser, Brissaud states:

If Schloesser has not had similar results it is because he has not carried his alcohol to the nerve filaments. The myelin sheath and axis cylinders have escaped the destructive local action of the alcohol. His injections have been perineural and not intraneural.

Fischler,⁸ in a report from the Erb clinic of 12 cases of sciatic neuralgia and neuritis treated with alcohol, reports 8 successes (4 complete and 4 partial), and 4 failures. In 3 of Erb's own cases and 1 of Fischler's motor paralysis with reaction of degeneration occurred, serving to show that alcohol induces a toxic degenerative neuritis. Three patients recovered after one year, and one gives evidence, after one and a half years, of the paralysis. Fischler concludes that whereas alcohol is a desirable remedy for palliation of the severe neuralgias of the sensory nerves, its injection where mixed or pure motor nerves are concerned must be recommended with great reserve and as a last resort, as it were.

For these good and sufficient reasons the use of alcohol in deep infiltrating injections for sciatica is, in my opinion, contraindicated.

METHODS

The aim is to inject the sciatic nerve at one (if that suffice) or more points in its course after it leaves the great sacrosclatic foramen. One is quite certain of getting into the nerve by introducing the needle in a slightly oblique and upward direction from a point on a level with the gluteal fold, midway between the tuberosity of the ischium and the great trochanter of the femur. In the average individual the nerve at this point lies about 6 to 7 cm. deep. In unusually stout or very muscular people I have observed it to be 10 cm. deep from the skin surface, as indicated by the disappearance of the full length of the needle. In very thin individuals or delicate women I have reached it at scant 5 cm. Another desirable point for injection for pain lower down is at a point behind and just below the head of the fibula, where the superficial peroneal branch can readily be felt with the finger. In the earlier cases in which injections were given these were the landmarks advocated and endorsed, since on the whole, they had proved satisfactory. The one suggested for the middle of the thigh is not, however, entirely free from objection. The needle, for instance, does not take an unvarying and fixed course, nor is the depth of the penetration always sufficiently exact. The soft parts are too yielding in some instances, and the contractions of the gluteal muscle masses a hindrance to the free passage of the needle in others. It has been customary in this location to pierce the gluteus maximus, but Tandler⁹ thinks that this can be improved on, and he accordingly penetrates at the lower border of the gluteus maximus and then passes the needle upward under that muscle. More desirable even than this muscle index is, in my opinion, a bone landmark, for it favors above all things precision, just as it does in reaching the main division of the fifth nerve. The selection of a higher point for puncture, at the notch, fulfills these conditions. A method of ensuring accuracy in this location is suggested by Brissaud, Sicard and Tanon. They place a patient in the lateral position, with the thigh and leg semiflexed, and determine three points, the great trochanter, the tuberosity of the ischium and the sacrococcygeal articulation. A line is drawn from the trochanter to the sacro-

3. Fischler: Münch. med. Wchnschr., Aug. 6, 1907.

4. Rev. neurol., 1907, p. 633.

5. Rev. neurol., 1907, p. 525.

6. Rev. neurol., 1907, No. xv, p. 777.

7. Rev. neurol., July 30, 1906, xiv.

8. München. med. Wchnschr., Aug. 6, 1907.

9. Wien. klin. Wchnschr., 1907, No. 49.

cygeal joint and on it, at a point one or two finger-breadths above the tuberosity of the ischium, they insert the needle. The bony pelvis shows this to be a good landmark, but the ischial tuberosity is not always felt with ease.

Therefore, still another method is offered which makes use of the spine of the ischium, referred to by the French in their clinical writings as *l'épine sciatique*. A thumb's breadth to the outer side of this determined point, resting on bony surface, lies the broad sciatic nerve.¹⁰

METHOD OF LOCATING SCIATIC NERVE

A line is drawn from the sacrococcygeal joint to the postero-external border of the great trochanter; at the junction of the inner one-third and outer two-thirds of this line is found the spine of the ischium. Placing the needle a thumb's breadth to its outer side and penetrating in a directly perpendicular line to a variable depth one engages the sciatic nerve.

That I might be assured of the constancy of the relations to this landmark, I injected the nerves of many fresh unhardened cadavers placed at my disposal in the anatomic laboratories of Northwestern University Medical School. The regional dissections to the nerve, made by my associates in the work, Messrs. Weber and Bundesen, directly after my having injected a few drops of aqueous solution of eosin into the nerve, showed the stain to have come in contact with the nerve sheath in every instance. The depth to which the needle passes before striking on the bony surface of the ischium is very variable in different individuals. In some I found it to be 4 to 5 cm., in others 8 to 10 cm. In all but the four earlier cases this landmark was adopted for locating the nerve. In my opinion, it is always to be preferred and constitutes a distinct addition to the technic.

THE SYRINGE, NEEDLE AND TECHNIC

The syringe I use is all metal and large enough to hold 60 c.c.; one made all of glass might be preferred, but I found it fragile and especially perishable in the larger sizes requisite for massive doses of solution. The metal body, plunger and tip may be separately boiled. These metal syringes are ordinarily equipped with a so-called catheter or ear-tip; but for this particular injection I have suggested a slip-tip which allows the needle to fit the barrel directly. This obviates the annoyance of adjusting an intervening piece of rubber tubing to the needle and secures against leakage. The needle is of the pattern used in trifacial injections. It is of steel, 12 cm. in length, with a caliber of 1.5 mm., and provided with a half-sharp point, which is protected and made less cutting by the presence in the lumen of a dull-tipped stylet. A needle too dull causes difficulty in getting through the skin and unnecessary pain, while one too sharp may completely transfix the nerve and by such trauma incur an unpleasant complication. For the convenience of estimating the accurate depth of the nerve I have suggested graduating the needle in centimeters, from one to ten.

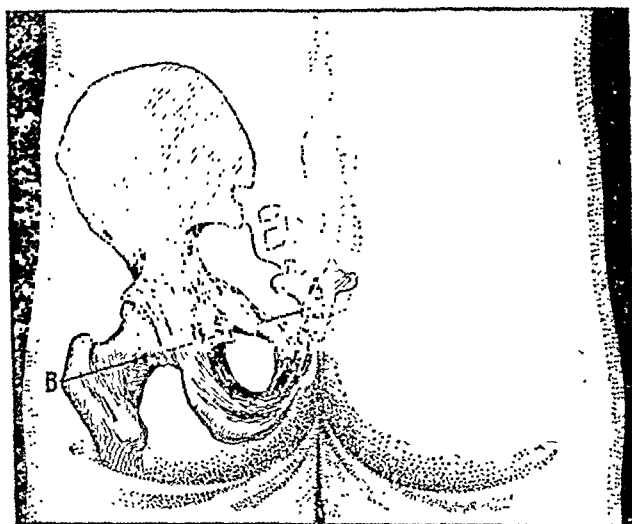
The patient should lie on the abdomen, with the legs fully extended, and a flat pillow or pad placed in the hollow of the groins. A comfortable position is essential to overcome contractions of the gluteal muscle masses. I have not been able to note any advantage in placing the patient in a lateral position, with the hips and knees semiflexed. The entire buttock on the af-

fected side should be cleansed and rendered aseptic, as for any operative procedure. The landmarks are then established and the maneuver of locating the point of puncture completed as each operator may elect. I punctuate the several points with tincture of iodine.

A general anesthetic has never been found necessary. In nervous patients or those unduly susceptible to pain it may be desirable to raise an anesthetic bleb with Schleich solution before penetrating the skin.

The needle, with the stylet slightly withdrawn from its tip, is put through the skin, and when well in the subcutaneous tissue the stylet is returned to cover the point and the needle carried to the necessary depth. The direction is perpendicular. Aimless jabbing around, either in soft tissue or on the bony surface, is superfluous and harmful.

The moment the nerve is touched the patient feels a distinctive sharp lancinating pain at the heel or low down in the back of the leg, attended, as a rule, with a quick jerking movement of the limb. This heel pain was present in many of my cases and is referred to by Lange as a "control pain" (*Kontrolschmerz*), a test pain, indicative of accurate placement of the needle. When it is not elicited, some patients have complained



Illustrating landmarks for reaching sciatic nerve at notch. The linear measurement in drawing is necessarily curvo-linear on the body. (a) Sacro-coccygeal joint. (b) Trochanteric border. (s) Spine of ischium. (B) Sciatic nerve a thumb's breadth to outer side of spine. Anatomic accuracy has been somewhat sacrificed to illustrate landmark. The symphysis and coccyx should not touch when the pelvic bones are tilted at their proper angle.

of diffuse pain in the buttock; others have felt it in the thigh, and some at the knee. On removal of the stylet a few drops of venous blood occasionally ooze through the needle, but that is all. The filled syringe is now attached, and under steady, firm pressure, and without pauses, the solution is slowly injected, the amount being gauged by the cubic centimeter index on the piston-rod. The needle is finally quickly withdrawn and the point of puncture sealed with a cotton collodion patch. If much local tenderness prevails immediately after the injection I instruct patients not to lie on the affected side for several hours. Soreness persisting for several days is best relieved by moist warm compresses of extract of hamamelis.

In advancing a new method of treatment there are always inquiries as to accidents, dangers, complications and therapeutic results in general, and these, so far as I know them, can be briefly stated.

10. Levy and Baudoin: *Rev. neurol.*, 1907, xiv, 777.

ACCIDENTS, DANGERS AND COMPLICATIONS

Accidents I have not encountered. Neither the needle nor salt solution when used in varying quantities or at different temperatures gave rise to untoward, unpleasant effects. Von Noorden¹¹ records an instance of a needle breaking off in the deep tissue from a powerful muscular contraction of the gluteus, but this is an isolated occurrence. I can not appreciate by what circumstance harm could be done, aside from transfixing the nerve and so badly traumatizing it as to cause sensory and motor paralysis. My colleague, Dr. Bassoe, in a personal communication, says that he thinks this is what may have happened to one of the patients recently injected during his service at the Cook County Hospital. Missing the nerve and its resistant bony floor,

sidered as indicating that asepsis has not been observed in the course of operation. Attention has been called to the liability of an idiosyncratic individual to development of toxic symptoms following administration of betacucain, no matter how small the dose, but I am not familiar with any pronounced ill effects from this source. If nausea, vertigo and gastrointestinal distress were at all marked I should feel much disposed to regard the eucain ingredient with suspicion. Other minor subjective complaints have been noted, but in my opinion they are unworthy of mention.

GENERAL THERAPEUTIC RESULTS

In the more favorable cases (three) the relief from pain was astonishingly prompt, even before the injection

SCIATICA (TABULATION OF SIXTEEN CASES)

Patient.	Date.	Place of Operation.	Sex.	Age.	Type.	Duration.	Solution.	Number of Injections.	Results.	Remarks.
J. D.....	Mar., 1907...	St. Elizabeth's Hospital.	M.	70?	Chronic	3 yrs...	Alcohol, 80 per cent., 2 c.c.	1	Improved; recurrence in 3 weeks.	Arteriosclerosis. Dissuaded from further trial by unfavorable reports concerning alcohol.
Jennie C..	Mar. 14, 1907.	House.	F.	31	Subacute, 2d attack.	4½ mos.	Alcohol, 80 per cent., 1 c.c.	1	Improved; recurrence in 6 weeks.	No further injection; alcohol contraindicated.
Augusta B.	Apr. 8, 1907.	House.	F.	42	Subacute.....	5 mos...	Beta-eucain, 40 c.c. and 80 c.c.	2	Not improved....	Pelvic metastatic carcinoma.
Karl A....	Apr. 26, 1907.	Office.	M.	36	Acute.....	3 wks...	Beta-eucain, 90 c.c.	1	Cured.	
Fritz L....	June 25, 1909.	House.	M.	44	Chronic.....	1 yr.....	Beta-eucain, 60 c.c., 20, 120.	3	Cured.	
Sophia K..	Sept 6, 1907.	House.	F.	58	Chronic, (acute exacerbation).	2 yrs....	Beta-eucain, 90 c.c.—120.	2	Improved	Diabetes.
Arnold S..	Nov. 10, 1907.	House.	M.	48	Subacute.....	6 mos...	Normal salt solution, 90—90—120.	3	Impr'v'd; recurrence in 3 wks.	Spondylitis deformans?
Aaron M...	Nov. 12 and Jan. 4, 1908.	Michael Reese Hospital.	M.	38	Subacute.....	3 mos...	Normal salt solution, 90 c.c. Peroneal, 10 c.c.; normal salt, 120.	3	Cured	Complained of considerable weight and dragging pain in the right groin anteriorly for about 5 days after injection.
Sadie R. ..	Jan. 12, 1908.	House.	F.	22	Acute.....	2 wks...	Beta-eucain, 60 c.c.	1	Cured	Patient very hysterical.
George W..	Mar. 3, 1908.	Office and house.	M.	39	Subacute....	4½ mos.	Normal salt solution, 60-100 c.c.	2	Not cured.....	Arthritis of hip! Slight temperature for 3 days; 99.5° to 101°.
Abe R	Apr. 14, 1908. June 9, 1908.	Michael Reese Hospital.	M.	52	Subacute....	3 mos...	Nor. salt refrigerated to zero, 20-20-40-60-30 c.c.	5 during 2 visits at hospital.	Cured.	
Jake G....	Apr. 24, 1908.	House.	M.	26	Acute.....	8 days..	Nor. salt. Beta-eucain, 120.	1	Cured	Temperature for 48 hours: 100° to 100.6°.
Ada M....	June 1, 1908.	House.	F.	31	Acute.....	3 wks...	Beta-eucain, 60 c.c.	1	Not cured.....	Nausea, vomiting; too hysterical for future injection.
Sadie L...	June 28, 1908.	House.	F.	28	Acute.....	1 yr.....	Nor. salt refrigerated, 30 c.c.	1	Not cured.....	Chronic parametritis.
Chas. G....	July 8, 1908.	House.	M.	36	Subacute.....	2 mos...	Nor. salt refrigerated, 60 c.c.	1	Cured.	
Aaron S...	Sept. 12.....	House.	M.	29	Acute.....	6 days..	Beta-eucain, 90 c.c., 120 c.c.	2	Cured.	
Dr. Bassoe's 2 patients.	July 20.....	Cook County Hospital.	M. ? F. ?	? ?	Subacute..... Subacute.....	? ?	Nor. salt sol., refrigerated, 60 c.c. Beta-eucain.	1 ? 1 ?	Cured (Dr. Bassoe's verbal report).	Do not know result.

by a puncture made too high up, the needle could pass through the foramen and inundate the pelvis with salt solution, but this is not likely, nor would it be harmful. Dangers from hemorrhage in this location are absolutely nil. Of complications, I have in three cases noted, six hours after injection, a slight rise in body temperature, lasting from twenty-four to forty-eight hours; in no case was it preceded by a chill, but one patient complained of chilliness. From the reported cases of others and my own I believe such reaction as is evidenced by slight elevation of temperature occurs when the larger (massive) doses are injected—those exceeding 60 to 80 c.c. A slight transitory rise is a resorptive type of temperature and need not be con-

sidered as indicating that asepsis has not been observed in the course of operation. In others, again, the feeling of tension under the increasing fluid content greatly intensified the pain during injection and perhaps for an hour or more thereafter. Some patients whose pain radiated down the heel experienced relief to the knee only, while tender points in the calf and a sensitive nerve trunk below the knee persisted. In these cases, after injecting at the notch, I at the same sitting injected 10 to 20 c.c. into the peritoneal nerve at the head of the fibula with good effect. It was gratifying to see two bedridden hospital patients walk back to the wards with comfort directly after the first treatment. In several ambulatory cases of moderate severity the injections were given in my office, and the patients experienced neither difficulty nor discomfort in going home.

11. Wien. klin. Wchnschr., 1907. 'o. 49.

In the severer cases in which several injections were required the patients were kept in bed for forty-eight hours; then forced flexion, sitting and standing were practiced to note improvement. The interval for injections following the first one was variable, and I think no advice need be ventured on this point, except to state that it is safe to give the injections from twenty-four to seventy-two hours apart, and in equally close succession for as many injections after that as may be necessary. The largest number in a given case was five. Individual conditions should, I think, prevail in the matter of reinjections. Tenderness may persist at the point of puncture for several days.

In the earlier cases objective sensory changes in the distribution of the nerve were examined for, but none were noted that could be relied on, because of the predominating "subjective" pain.

The prognosis, if the reports of Lange, Bum, Umber, Alexander, Kellersman, Grossman, Schlesinger, and several others are to be credited, is exceedingly good.

Lange states that of his 56 cases 13 were acute, and among this number treated there was 1 complete failure and 1 recurrence after six months. In the 11 subacute cases, 1 patient remained uncured, 2 were improved, and there was 1 recurrence in four weeks. There were 32 chronic cases, with 4 patients uncured, 4 improved and 4 recurrent. The total of 56 cases showed 15 per cent. of complete failures, 10 per cent. recurrences, 10 per cent. improvements—which is intended to mean that his method accomplishes cures in approximately 65 per cent. of all the cases.

Bum¹² has treated 81 patients who had sciatica with injections of 100 c.c. of an 8 per cent. sodium chlorid solution, and records 63 per cent. complete cures and 21 per cent. improvements.

Schlesinger¹³ treated 42 patients, with a total of 51 injections, with excellent results. The percentage of cures, improvements, recurrences and failures in my own cases corresponds very closely to that of other observers who had access to more abundant material. I have had occasion to inject refrigerated normal salt solution in a case of herpes zoster for the severe root pain which long outlasted the eruptive skin lesion, and have used it in a case of intercostal neuralgia. In both instances, which I shall report more fully at another time, the control of pain was marked and lasting.

COMMENTS

1. The deep infiltrating perineural injections palliate the pain of sciatica.
2. The acute, subacute and chronic types of sciatica lend themselves to this treatment, and whereas the number of injections required varies, immediate notable relief is afforded by the first injection in nearly all cases.
3. The treatment is most indicated and effective in the non-symptomatic cases, but is also of value in the symptomatic variety.
4. Normal salt solution of varying temperature and quantity, or the beta-eucain solution of Lange, is to be preferred to other anesthetic or mordant solutions. Alcohol is harmful and contraindicated.
5. The sciatic nerve may be reached deep in the ischio-trochanteric hollow (its peroneal branch lower down at the capitellum fibulae), but it is more surely

and safely reached directly after its emergence from the notch.

6. The point for puncture and penetration to the nerve is best determined by drawing a line between the postero-external border of the great trochanter and the sacro-coccygeal joint; at the junction of the inner third and outer two-thirds of this line is the spine of the ischium. A thumb's breadth to the outer side of this spine lies the sciatic nerve. Cadaver experiment and clinical experience lead me to endorse this landmark above all others.

7. The method requires a syringe (preferably metal) with a capacity for 30 to 60 c.c. or more, a needle of desirable length (8 to 12 cm.) directly attachable to the syringe.

8. Accidents of any consequence almost never occur. Unpleasant effects and complications are few and insignificant.

9. The prognosis in the sense of a cure is good if the facts suffice—namely, that in the large number of cases observed for from one to four years many patients have been entirely free from pain during that long an interval. Improvement is common. Recurrences are not the rule, and failures are the exception.

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THE DURATION OF THE ACTIVELY INFECTIOUS STAGE OF TUBERCULOSIS *

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The object of this study has been primarily to render a rich field of tuberculous material of practical value from both the clinical and laboratory viewpoints. Scant benefit accrues to humanity at large from scientific knowledge that can not be applied to its betterment or protection. We have endeavored through scrutiny of the secretions and excretions of tuberculous subjects to arrive at definite conclusions: 1, with regard to the possibility of transmitting the disease during its earliest stages; 2, as to what means, and through what media, infection of human beings by other individuals may and does occur; and, 3, as to how far and how thoroughly under the ordinary circumstances of daily life Nature provides for the destruction of infectious tuberculous material, subsequent to its excretion from the human body.

It has been, and as the result of this investigation still more certainly is, our conviction that tuberculous infection may and does not infrequently occur through the semen; whether or not by means of the spermatozoön as the host and carrier of the tubercle bacillus remains to be determined. Such a mode of infection does not, of course, require the immediate appearance of a symptom-complex of tuberculosis, as we know it clinically. That the disease may be implanted prior to birth needs as witness only the occasional congenital caseous pneumonia, included in the experience of every pathologist of ordinary wide opportunity. Veterinarians and plain farmers add a homely proof also in the not infrequent dropping of a tuberculous calf by a tuberculous cow, evidence to the same effect from the

¹² Wien. klin. Wchnschr., 1907, No. 49.

¹³ Deutsch. med. Wchnschr., 1908, No. 6.

*Read before the International Congress on Tuberculosis, Washington, Sept. 28, 1908.

lower animal kingdom. John R. Williams¹ cites a case of almost certain placental transmission. Harbitz² has recently reported five cases of congenitally tuberculous twins, and has demonstrated the presence of latent bacilli. Kraemer³ relates a number of instances in which the father is tuberculous, and all the children die of the disease, the mother remaining perfectly well. Every physician knows of at least one such occurrence. It is, in fact, our unhesitating belief that many if not most cases of so-called predisposition, or postnatal infection, with tuberculous parentage, are illustrations of latent tuberculosis—the result of intrauterine infection. Such transmission, whether maternal or paternal, reveals its secrets in response to only one line of investigation, and this offers difficulties and leads to conclusions that are not by any means clear-cut nor final.

There have come to us during the past four months eight opportunities for autopsy on men dying in the Philadelphia General Hospital from tuberculosis in advanced stages. From each of these subjects the testicles and two inches or more of each vas deferens were removed as soon as possible after death. The duct was carefully dissected from the surrounding tissues, and by sterile scissors cut across about one inch from its junction with the testicle. By gentle pressure from the testicle outward along the duct were expressed from one to two small drops of clear semen, which was at once applied to clean glass slides, spread, and stained for tubercle bacilli, decolorized and differentiated with Pappenheim's solution of rosolic acid in alcohol. The fresh specimen was first examined for live spermatozoa, but in no instance were they found in motion. In all fifteen specimens of semen were examined (from eight subjects).

CASE 1.—General tuberculosis. The testicles and epididymis appeared normal. The semen from the right testicle and duct showed no bacilli. The semen from the left side was also negative.

CASE 2.—Tuberculosis of lungs; cavity formation. The testicles and ducts appeared normal. The semen from both sides failed to show bacilli.

CASE 3.—Empyema. Caseous pneumonia of left lung. Right lung less involved. Sputum full of bacilli. The semen from the right testicle and tube yielded one typical tubercle bacillus. The semen from the left side showed no bacilli. The testicles and duct appeared normal.

CASE 4.—Chronic ulcerative pulmonary tuberculosis. Tuberculous enteritis, ulcerated mucous membrane of appendix. One testicle only was present. The semen from the normal-appearing testicle and duct yielded three typical tubercle bacilli.

CASE 5.—Chronic ulcerative tuberculosis of the lungs. The semen from the normal-appearing right testicle and duct showed a few typical tubercle bacilli. No bacilli were found in the semen from the left side.

CASE 6.—Caseous pneumonia. Tuberculous enteritis and cystitis. The testicles and ducts appeared normal. The semen from the right side showed one tubercle bacillus. There was none in the semen from the left side. The testicles appeared normal, also the ducts.

CASE 7.—Chronic ulcerative tuberculosis of both lungs. Caseous pneumonia of left lung. The testicles and ducts appeared normal. No tubercle bacilli were found in the semen from either side.

CASE 8.—Case from insane wards. The *Amoeba coli* was present in the stools. There was a tuberculous cavity in the right lung and pneumothorax; tuberculous ulceration of intestines and feces full of tubercle bacilli. One tubercle bacil-

lus was found in the semen from each side. There was no macroscopic involvement of testicles or tubes.

Thus in a series of eight cases tubercle bacilli were found by simple staining methods in five instances, and in the semen from five out of fifteen testicles. The fact that the bacilli were usually found, if at all, in the semen from only one side, would rather give force to the belief that there was local tuberculosis of the corresponding organ or duct, though not macroscopically evident. This fact would not, however, affect the question of the infectiousness of the semen, and the danger to the woman, and the fetus. The fact that the semen was directly from the testicle points to the blood as its vehicle from the point of inoculation.

Inoculation and impregnation of laboratory animals with testicular semen from tuberculous subjects had been projected, is now being carried out, and will be reported on subsequently. The semen from the seminal vesicles has been used for inoculation of the lower animals by a number of investigators, and has frequently produced tuberculous infection. Karlinski⁴ at times found the semen from the seminal vesicles swarming with tubercle bacilli. In other cases he has found it impossible to demonstrate one bacillus, until inoculation experiments enabled their demonstration in the test animals. He has also injected bacilli into the testicle of a healthy goat, then has brought about coitus with the female, and studied the tuberculous progeny (five out of nine) from a healthy mother. He has noted the dropping of a tuberculous calf by a healthy cow, impregnated by an infected bull; and proved his results by autopsy.

We know of no one other than ourselves who has used the semen obtained directly from the testicle and the first portion of the vas deferens, and shall therefore complete this study when the opportunity presents. The discovery of the tubercle bacillus in testicular semen not only establishes the possibility, but the likelihood of frequent transmission of the disease by the male to the fetus. It also aids in establishing the more important fact that congenital tuberculosis is likely to be apparent at birth proportionately to the susceptibility of the maternal element and the developing fetus to the influence of the bacillus and its toxin. Provided they are resistant and fully or overnourished until term, there may be no indication of the latent infection.

There is no need to dwell on the possibility of infection by means of sputum. Practical interest seems to us to center rather in the demonstration of the bacilli in other excreta of the body, to which human beings are constantly and ignorantly exposed for new or reinfection. Important also are the time of earliest infectiousness of these excreta, and their tenaciousness of virulence under favorable and adverse circumstances within and without the body.

EARLY APPEARANCE OF TUBERCLE BACILLI IN SECRETIONS AND EXCRETIONS

It is a matter of common knowledge among medical men that tubercle bacilli may be determined by staining methods in the sputum from a bronchial tuberculosis long before the chest yields definite and localizing signs. It is equally well known that the intestine may swarm with tubercle bacilli from a rectal ulcer before the presence of the ulcer has been suspected.

A case in point has been studied recently by us in a man who was admitted to the wards of the Philadelphia

1. Probable Placental Transmission. THE JOURNAL A. M. A., April 6, 1907, xlviii, 1184.

2. Untersuchungen über Tuberkulose, Christiania, 1903.

3. Beitr. z. Klin. d. Tuberk., 1908, ix, No. 2.

4. Ztschr. f. Thiermed., 1903.

General Hospital supposedly suffering from uremic intoxication. He was comatose and his breathing stertorous; there was no cough, no considerable sputum, no symptom attracting attention to the lungs, and no diarrhea. A tiny speck of sputum was once expectorated and was found full of tubercle bacilli. The feces were then studied and showed scattered tubercle bacilli. When later the urine could be obtained the bacilli were also demonstrated in the sediment. There had been no suspicion of tuberculosis prior to the examination of the stray mite of sputum and the feces. The patient was infectious to others without doubt for days, perhaps for weeks and months, prior to the detection (accidental or routine, as one will) of the causal germs.

Although not by any means a new finding, the fact has not been generally recognized by the practitioner that in the feces and urine of most, if not all, tuberculous patients is contained infectious material and that in these excreta the bacilli may be demonstrated with great frequency and regularity by tinctorial methods, and often by animal inoculations when the former fail. The full knowledge of the value of this procedure led us to a tinctorial study of the sputum, urine and feces, in a large series of cases known to be tuberculous; and also to a series of inoculations of animals with tuberculous material, especially such as no longer showed the bacillus by tinctorial methods.

Our first step was the exhaustive examination of specimens of sputum, urine, and feces, from 100 patients known by the examination of the sputum to be actively tuberculous. In all instances the smears were made on new and thoroughly clean glass slides, long immersed in alcohol, ether and nitric acid, then washed with soap and distilled water, and dried over the flame. Urinary sediments were usually centrifugated and washed three times with distilled water prior to fixing on the slide. When only a small quantity of urine was obtainable (1 to 2 c.c.) the washing was dispensed with and the entire quantity of urine was placed in the center of a slide and allowed to dry in as small a space as possible, being stirred in the beginning with a tiny portion of egg albumin. The sediments were all obtained from eight ounces of the evening urine, allowed to settle over night, and from this precipitation was pipetted off into distilled water a small tube full of deposit.

We mention in passing the great difficulty experienced by us and by all students of urinary sediments in fixing the latter on a glass slide. After many failures we found that two methods would invariably succeed: 1, the coating of the smear, after fixing in the flame, with a thin solution of ether celloidin; and, 2, the use of a minute quantity of egg albumin on the slide before applying the urinary sediment. The single objection to the ether celloidin rests in its thickness, and consequent overdeep staining with the counter-dye. Even with the albumin fixation one precaution is necessary, namely, that the smallest possible quantity of albumin should be used in order to avoid the difficulty in decolorizing the albumin, and the albumin-fixed specimen by Pappenheim's fluid. Once these precautions are observed, no further sediments should be lost.

The smears from the feces were in some instances prepared by dissolving a little of the stool in a test-tube of distilled water, and smearing this semipaste in a thin, even layer on a slide. Occasionally it was sufficient to rub a small portion of the interior of the stool into a drop of sterile distilled water already on the slide. There seemed to be little advantage in one method as

compared with the other, though the latter affords economy of time and glassware, and was finally adopted as the method of choice. The slower method was held in reserve as slightly more thorough, to use in the event that no bacilli were found by the first procedure.

In all cases the smears were stained with cold carbol-fuchsin in covered jars, for at least fifteen minutes, and then decolorized and counter-stained in Pappenheim's solution of rosolic acid and alcohol about twenty minutes. A number of specimens were allowed to remain in the rosolic acid and alcohol for twelve to eighteen hours, without decolorization of the tubercle bacilli.

The following record will show the startling frequency of the presence of the tubercle bacillus in the urine and feces of admittedly tuberculous subjects in advanced stages of the disease:

Of 100 patients, male and female, from the tuberculosis infirmary of the Philadelphia General Hospital, the sputum of all chosen for experiment showed considerable numbers of tubercle bacilli. The entire 100 also showed tubercle bacilli in the feces, a few in considerable numbers; many more showed but few in scattered microscopic fields; several in such scarcity as to admit of discovery only after painstaking search. Thirty-eight of the 100 also showed the bacilli in the urinary sediments, never in considerable numbers, but, on the contrary, usually discovered after tedious study of the specimen. All negative specimens were examined for at least one hour before being considered free from tubercle bacilli. Several specimens, at first considered negative, were searched repeatedly and after several hours yielded one or two bacilli.

There seemed to be no direct relation between the number of tubercle bacilli in the sputum, the feces and the urine of a given patient. Occasionally the sputum appeared richly infested, and only the last field examined would disclose a lone organism in the fecal or urinary preparation. As far as possible in this series we avoided patients with renal or intestinal tuberculosis, and the patients that came to inspection at autopsy usually bore out our judgment in their freedom from active involvement of these organs. One patient in the insane ward, already referred to, had been studied for a considerable time as an instance of ameba infection. The stools showed tubercle bacilli in such numbers as to suggest tuberculous sputum rather than feces. This patient died suddenly of tuberculous pneumothorax, no lesion having been suspected in the lungs, cough and sputum being absent. At the autopsy the lower bowel was found to be riddled with ulcers of a nondescript type, from the floor, of which, however, we obtained many tubercle bacilli.

We had also the opportunity of examining the excretions from a number of patients with supposed tuberculosis (pulmonary) who had found their way into the tuberculosis wards, and yet had never yielded tubercle bacilli in the sputum. In not one of these cases in which the examination of the feces and urine indicated an absence of tuberculosis, did the autopsy prove the case one of active tuberculous infection.

One of us (Rosenberger) has during the past few years examined the feces in 1,104 cases of all kinds (including 71 instances of known tuberculous infection) with a percentage of 26.6 of positive finding of the tubercle bacillus. Excluding the 71 instances of recognized tuberculosis, there remain specimens examined from 1,033, of which number 21.5 per cent. were positive. These examinations were mostly of specimens

from patients with maladies resembling tuberculosis, such as typhoid states, or even malaria. A number were from apparently healthy individuals. To make sure that the tubercle bacillus alone was being dealt with, old and young cultures (six days' and six weeks' growths) of the butter bacillus, of the bacillus of Rabinovitch, of Grassberger, of the grass bacilli of Korn and of Moeller, the horse-dung bacillus, mist bacillus, the margarin bacillus, the bacillus of nasal secretion, and the smegma bacillus, were mixed with feces. Spreads were then made in the ordinary manner (after the organisms had been left in the feces for from one to twelve days) and it was found that all these organisms would decolorize completely in twenty minutes. Control preparations made of sputum or feces kept in Pappenheim's solution, showed the tubercle bacillus still retaining the red stain of the carbol-fuchsin after 116 days' exposure to the rosolic acid alcohol. Sections of tissue containing the bacillus lepræ, stained with carbol-fuchsin and then placed in Pappenheim's solution, showed the bacillus still retaining the stain up to the fourteenth day. Another organism that apparently was as acid-fast as the tubercle bacillus was that of Johnes' disease in cattle. This resisted Pappenheim's solution for sixty days. The spread was then removed from the fluid by some one's error, and further study was interrupted.

The foregoing studies have led us to the following conclusions:

1. In all cases of active tuberculosis, not only in cases in which they can be demonstrated in the sputum or urine, tubercle bacilli are present in the feces.

2. The urine of all actively tuberculous subjects probably contains tubercle bacilli, even though in small numbers. The average scarcity in a given specimen renders the study of the urine impracticable as a routine procedure. In many specimens they are stumbled on only when the examiner is about to give up the search, and it becomes necessary to class the specimen among the positive by virtue of the last field examined. Certainly it would seem that former publications reporting higher percentages of urines as positively containing tubercle bacilli, have included smegma bacilli among their findings. These can be differentiated, either by careful catheterization or by the use of rosolic acid and alcohol in decolorizing, or, if necessary, by obtaining the urine directly from the bladder at autopsy, as in the animals examined in our Experiments 4 and 5, reported in this study.

Thus Flick and Walsh⁵ report a series of 60 patients examined, the urine of 44 of whom showed supposed tubercle bacilli, by tinctorial methods, and yet out of five animals inoculated with the urinary sediment not one developed tuberculosis. In the presence of actual and living tubercle bacilli the tuberculous urinary sediment should prove infectious for susceptible animals, as shown by Bloch,⁶ who used, in many instances, urinary sediments in which the bacilli could not be demonstrated by tinctorial methods, and yet therewith successfully inoculated guinea-pigs with tubercle. His method was to crush the tiny inguinal glands between his fingers, and to inject the urinary sediment in the neighborhood of the trauma, in the likelihood that this area would be infected.

3. The question still remains *sub judice* whether scattered tubercle bacilli may not be found exceptionally in

the feces and urine of normal subjects. It would seem rational to believe that the feces would contain occasional tubercle bacilli, carried into the mouth with the food or air, and thence into the digestive tract, without infecting the patient. Our investigation of apparently healthy subjects has in no instance led to the discovery of the tubercle bacillus. We have knowledge, however, of at least two cases in which we have found bacilli in the feces, and in which at autopsy (made by others) no macroscopic lesions of tuberculosis could be detected throughout the body. This does not mean, of course, that the patient may not have had an actual infection by tubercle bacilli at the time of examination of the feces, and the discovery of the bacilli. Nor does it even imply that microscopic lesions may not have been abundant, no histologic study of the organs having been made. The recent experiments of Ravenel and Reichel,⁷ as well as those of many other laboratory workers, have shown how little lesion the bacilli may cause in an intestinal wall on passage through the latter to cause a bacteriemia, and it may well be that the instances that seemed at first glance to be accidental bacilli were, instead, the only evident expressions of a latent tuberculosis.

We have also studied the spinal fluid, the fluid from thoracic effusions, and ascitic fluid from a number of patients suspected of being tuberculous. In many instances we have demonstrated the tubercle bacilli, in others not. In one man for whom we had despaired of relief from an over-refilling ascites, accompanying a dilated heart, incision was made and to our surprise numbers of tubercle bacilli were found in the fluid. The patient practically recovered after the incision, and the fluid failed to return. In the remarkable case, to which we have already referred, of the patient supposedly dying of uremia, with no known or recognized pulmonary lesion, and no cough, clinical recovery ensued, but the patient continued to evacuate bacilli in feces and urine up to the time he was lost to view.

The following cases are of decided interest in this connection:

CASE 9.—*Patient*.—C. S., Philadelphia General Hospital. Bacilli could not be demonstrated in the sputum or urine, and yet were easily shown in the feces. On physical examination this patient showed a small area of doubtful consolidation at the extreme right apex.

CASE 10.—*Patient*.—A. W., a negro, with signs suggestive of meningitis, showed a few tubercle bacilli in his spinal fluid and very many in the feces. There were no signs of pulmonary or intestinal involvement and there was no diarrhea, and no increase of sputum.

CASE 11.—*Patient*.—J. K. presented a slight and probably early involvement of the right pulmonary apex. No tubercle bacilli could be found in the sputum, but they were present in large numbers in the feces.

CASE 12.—*Patient*.—S. C., an Italian, with an indefinite febrile condition, no signs of meningitis other than a slight stiffness of the nucha. The spinal fluid yielded tubercle bacilli, also the feces. There was no indication of intestinal implication.

CASE 13.—*Patient*.—J. M. had apparently a pulmonary congestion, slight fever, both bases flat on percussion, no cough, no sputum, no diarrhea. The abdominal muscles were rigid, and tubercle bacilli were found in the feces. This man recovered and was discharged from the hospital, still passing tubercle bacilli from the intestinal canal.

We have also in the past year had the opportunity of studying four cases of acute miliary tuberculosis of

5. Tr. Path. Soc., Philadelphia, April, 1903.
6. Berl. klin. Wchnschr., xlv, No. 17.

7. Jour. Med. Research, March, 1908.

other portions of the body than the intestines, in which tubercle bacilli were demonstrated in the feces. Autopsy showed an intestinal tract free from ulceration in each case.

One patient with cervical adenitis, on the way within the last month to the operating table, presented tubercle bacilli in the feces, and no other suggestion of tuberculosis throughout the body.

The foregoing cases emphasize at least three points of interest to the practitioner and to the pathologist:

1. Instances are not infrequent in which tuberculosis of parts other than the pulmonary and digestive tracts may be demonstrated by examination of the feces.

2. Tubercle bacilli may be sometimes shown in spinal fluid, or ascitic or pleural fluid, in cases of early and localized tuberculosis other than that of the pulmonary system, and in these cases the bacilli may be and usually are excreted in the urine and feces.

3. Incipient pulmonary tuberculosis may show considerable numbers of tubercle bacilli in the intestinal excretions, even in the absence of cough and obtainable sputum.

Of the infectiousness of incipient pulmonary tuberculosis there can be no doubt, even in instances in which neither cough nor sputum is apparent, provided such patients excrete tubercle bacilli in urine and stool. A number of cases have come to our attention that still further emphasize the need of supervision and care of the incipient disease. Two such may be mentioned in bare outline:

CASE 14.—Miss B. was reported in a former series of cases of incipient tuberculosis. She had then a slight involvement of the right apex. The nature of the onset and the physical signs left little room for doubt as to the nature of the process. There was slight cough, no sputum.

CASE 15.—The sister of Patient 14 slept with her during her convalescence, and developed a similar though more extensive involvement. Both of these patients recovered and are perfectly well.

CASE 16.—Simultaneously with the recognition of the second case the cook in the house, who cared for Patient 15 during these months as maid, and with whom Patient 15 had constant dealing as housekeeper, developed an active apical lesion. No other source of infection than Patient 14 could be discovered for the latter two patients. The feces of all three contained tubercle bacilli. There were many opportunities of infecting the hands in disposing of the urine and stools of Patient 14.

CASE 17.—Miss L. was a young girl presenting an early and very slight involvement of the right apex posteriorly, in conjunction with an appendicitis, which operation and pathologic study proved to be tuberculous. Tubercle bacilli could not be found in the sputum. The sister of the patient, who had not been well, was her bedfellow, and soon developed an active tuberculosis of the left lung and pleura, which is not yet under control. There was no apparent opportunity common to both for the infection. Moreover, the cases seemed strikingly successive and similar in course and type. The feces of both contained tubercle bacilli.

If these are true instances of infection of healthy persons by infectious material transmitted from supposedly non-infectious cases of tuberculosis, whether through inappreciable particles of pulmonary or bronchial material or through contamination of hands or food by moist or dry fecal or urinary soiling or dust, then it would appear that care must be exercised in a new and more active fashion in throwing safeguards around those who live with a patient who has even incipient tuberculosis. Seen in this light, at no date in the history of a case of infection is a rigid oversight begun too early

from the standpoint of the welfare of others. Such a conclusion, apparently well grounded, requires only the fact already stated of the presence and discovery of tubercle bacilli in the semen, and the consequent likelihood of frequent latency of tuberculosis, to render the possibility of infection of a healthy mother or family by a newly-born tuberculous infant not only a possibility but a matter of concern. Especially will this be true in a case in which the father is known to be tuberculous and the mother appears to be free.

We have had neither the opportunity nor the time as yet to study the milk from nursing tuberculous mothers. The frequency of infection of milk from tuberculous cattle leaves little occasion for hope that a different state of affairs obtains in the human secretion.

The knowledge that pregnancy and the ordeal of child-bearing tends to light up a sluggish or dormant tuberculous condition in the mother would also lead us to believe that the tuberculous mother is above all other times then likely to secrete and excrete tuberculous waste products.

INFECTIOUSNESS OF OLD SECRETA AND EXCRETA

We have been interested to note in passing the duration of virulence of the tubercle bacillus in sputum, urine and feces under natural conditions favorable to and unfavorable to their life. We have met with results that vary to the last degree. On June 1, 1908, six specimens each of urine, sputum and feces, all containing virulent tubercle bacilli, were set aside in vessels covered with large-meshed gauze and exposed for about twelve hours daily to sunlight and air. On July 1 and August 1 the bacilli in the sputum could be demonstrated without difficulty and proved specifically toxic for guinea-pigs. They took the stains readily in the urinary sediments also and in the dried fecal mass rubbed up with distilled water and smeared as usual. The specimens were then saved for further study. A few days later the bacilli could no longer be shown in two of the specimens of sputum. With material from one of these sputa a guinea-pig was inoculated (Experiment 3) hypodermically, and within a few days tubercle bacilli were demonstrated in its feces, not having been present there up to that time.

In contradistinction to this finding one of us (Rosenberger) has preserved virulent tubercle bacilli in tap water, exposed to sunlight and diffuse daylight for a full year, then has produced tuberculosis in a guinea-pig by inoculation and recovered the bacilli from the animal. There seems to be no rule possible for the calculation of the viability of the germ under a given environment. There seems to be some doubt, moreover, whether in process of time tubercle bacilli must necessarily die out in any or all excreta, the time being indeterminate and impossible of regulation except by immediately destructive methods. Certainly we must conclude that the organism may persist in a non-stainable form in any or all known media and retain its virulence for use on a favorable occasion.

It may still be that from the tubercle bacillus we shall learn the secret of perennial youth. In a recent paper Dixon⁸ has discussed the action of direct light and eosin on the tubercle bacillus. He seems a little more optimistic in regard to the bactericidal influence of drying and of the sun's rays than appears to us warranted

8. Dixon, Samuel G.: May Not Drinking Water, When Polluted with Sewage, Be One Medium of Dissemination of the Tubercle Bacillus? *THE JOURNAL A. M. A.*, Aug. 1, 1908, II, 380.

in the light of our experiments. There is no doubt that certain infected sputa are rendered innocuous by Nature's and by simple artificial means. It is our knowledge, and we believe that it will be of service to the practitioner if he is brought to understand that under favorable conditions, or even when exposed to air and strong sunlight, the bacillus may attain a virulent old age. The most dangerous feature of its persistence, as shown by our Experiment 3, is its occasional survival in a form that requires tedious culture and refuses demonstration by tinctorial methods.

There opens up an endless series of queries as to the actual presence or absence of bacilli in excreta on which a negative laboratory report is made and in which neither cultural nor inoculation tests are made to determine the doubt. This masked battery will decimate more than one generation and defy defeat and silencing unless some more certain method be discovered of promptly demonstrating the silent forms of the tubercle bacillus. The almost unlimited life of the bacillus in butter, and its frequent occurrence therein, has been dwelt on with force by Schroeder and Cotton.⁹ They have shown that after four and one-half months the bacilli were as virulent as at the start, the fatty nature of the butter probably protecting them from destructive influences. This may also lend a hint as to the length of life of bacilli even in dried secretions and excreta, in certain of which enough of fatty matter is perhaps maintained to allow of their existence, while in a few or even many the fat content is low and the bacilli easily destroyed.

ORIGIN OF THE BACILLI IN URINE AND FECES

There need be no discussion of instances in which local tuberculous lesions are present in either the urinary (kidney to urethral meatus) or digestive tracts. With regard to the appearance of bacilli in the urine of patients with tuberculosis of the glands of the neck, or of the lungs, or of the peritoneum even, there need be little hesitation in turning to the acknowledged bacteriemia for the explanation. With regard to the presence of bacilli in the feces in similar cases the answer must not be so precipitate.

In the first place they may be swallowed with food or water, or with sputa in instances of tuberculosis of the bronchi or lungs. On the other hand, our animal experiments do not lead us to believe that many bacilli introduced by the mouth become demonstrable in the feces until several days after their introduction into the stomach with the food. Experiments in which the bacilli have been introduced by us in the form of native sputum have led us to doubt whether they are carried into the intestines in a form that will accept the stain when swallowed by the patient as his own sputum. Certainly such a possibility must be considered. Of all the explanations, however, it now appears to us the least satisfactory.

Longcope¹⁰ and others have shown the frequency of tuberculosis of the thoracic duct and the involvement of its lymph with tubercle bacilli in cases of general tuberculosis. Here we find at least one explanation both of the presence of the bacilli in the intestine and of the scattering abroad from the digestive tract. The final means of transmission, however, whether one medium be the lymph and another the tissues themselves, must be the blood, if all the requirements and demands of the known

facts are to be met. Once grant, as we must, that bacilli administered in soup to animals reach the heart blood in four to five hours, as Besanti and Panisset have shown in a number of experiments, we need no further explanation of the transportation of tubercle bacilli from local lesions far distant to the manufactory of the fecal mass.

EARLY APPEARANCE OF TUBERCLE BACILLI FOLLOWING INOCULATION OF GUINEA-PIGS

It has also been our aim through the inoculation of guinea-pigs by various methods, and by careful scrutiny of their physical signs, their secretions and excretions, both prior to and subsequent to inoculations, to determine the earliest probable period of infectiousness in a given case of tuberculosis.

In order to arrive at as practical results as possible we not only fed to one guinea-pig tuberculous sputum spread on cabbage leaves, but into others injected tuberculous sputum in distilled water either hypodermatically or intraperitoneally.

EXPERIMENT 1.—On Aug. 8, 1908, a large male guinea-pig, weighing 420 gms., was fed on 8 c.c. of tuberculous sputum from a patient in the tuberculosis infirmary. The urine and feces were examined on the day prior to the inoculation, and on each day thereafter. On the day prior to the feeding a few micrococci and fungi were found in the stools and urine. On the third day after the feeding for the first time a few scattered tubercle were found in the feces, together with many tiny diplococci. The urine also contained many diplococci on the third day and thereafter, but no tubercle bacilli were discovered in the urine until the seventh day. They were constantly present in the feces from the time of the first appearance, and were occasionally found in the urine up to the time the search was discontinued. An autopsy was performed on this pig on Sept. 16, 1908. The lungs showed several small foci of caseous deposit. No other macroscopic change was evident.

EXPERIMENT 2.—On Aug. 18, 1908, a large brown and white male guinea-pig weighing 530 gm. was inoculated hypodermatically about an inch from the tail with tuberculous sputum from a woman in the infirmary. The feces and urine were examined daily before and after the inoculation. Tubercle bacilli appeared first on the fifth day in the feces, and on the eighth day in the urinary sediment. The search was then discontinued. Autopsy showed widespread tuberculous involvement of the lungs. The intestines showed no ulceration.

EXPERIMENT 3.—On Aug. 18, 1908, a large male guinea-pig, weighing 490 gm., was inoculated with a solution in 1 c.c. of distilled water of a dried tuberculous sputum which had been exposed to air and sunlight for over two months, and in which the tubercle bacilli were no longer tinctorially demonstrable. The feces and urine showed no bacilli on the day of inoculation or thereafter until the sixth day, when they were detected in small numbers in the feces. They were at no time found in the urine. Autopsy showed tuberculous involvement of the lungs. The intestines showed no ulceration.

EXPERIMENT 4.—On Sept. 1, 1908, a large male guinea-pig was inoculated intraperitoneally with 2 c.c. of tuberculous sputum and distilled water *ad*. It died of septicemia on the third day. The urine and feces were examined on the day of inoculation and no tubercle bacilli were found prior to operation. The peritoneal cavity at autopsy showed a large quantity of pus and lymph. There were also scattered miliary pus foci in the lungs. The peritoneum was thickened and everywhere covered with purulent exudate. A smear from the peritoneal pus showed a very few cocci and myriads of eosinophiles. The bladder was full of urine containing pus (2 c.c.). This was fixed and dried with egg albumin on a slide and stained. A single colony of eight tubercle bacilli was found in the preparation. They were also present in the feces obtained directly from the cecum.

EXPERIMENT 5.—On Sept. 1, 1908, a large male guinea-pig was inoculated with the same sputum and similarly to the

9. Circ. 127, Bureau of Animal Industry, U. S. Dept. Agric.
10. Bull. 3, Ayer Clin. Lab., 1906.

last one. It died on the fourth day, from septicemia. The urine examined before inoculation showed no tubercle bacilli. The feces also gave no bacilli. The autopsy gave the same findings as in the preceding animal, except that the suppurative process was not so far advanced. The lungs were congested, but showed no purulent metastases. A smear from the peritoneal pus gave myriads of small diplococci and no tubercle bacilli. The bladder contained urine, which showed in the dried and stained specimen a few scattered tubercle bacilli. The feces also contained scattered single tubercle bacilli.

CONCLUSIONS

1. Intrauterine tuberculous infection of the ovum through the semen is probably a frequent event.
2. Tubercle bacilli are present in the feces and in the urine of many, and probably all cases of active local and systemic tuberculosis of the human being.
3. Tubercle bacilli appear in the feces and urine of tuberculous subjects within the first few days following an acute infection, and in certain instances long prior to the appearance of physical signs.
4. The only likely means of rendering tuberculous excreta (sputum, feces, urine) innocuous is the direct and effectual application of heat. They can not be expected certainly to overgrow or die out or surely to succumb to sunlight or drying.
5. Excreta from which formerly demonstrable tubercle have apparently disappeared may still prove destructive to animal life, and the bacilli again be recovered from the test animals in a demonstrable form, both by culture and by tinctorial methods of examination of the excreta.
6. The routine examination of the stools for tubercle bacilli should be more invariable even than that of the sputum. It more often yields a positive result. In occasional instances the microscopic field is as thickly spread with the bacilli as any sputum. Often the search must be painstaking and extended until a few scattered bacilli have been detected.
7. The examination of the urinary sediment for tubercle bacilli is not adapted to the use of the general practitioner. It should be resorted to whenever necessary to a thorough confirmation of suspected and doubtful or local (genitourinary) infection. The inoculation of guinea-pigs with the urinary sediment is a surer though slower method of demonstrating the bacillus, provided the test animal escape early death from mixed infection.
8. Probably all infections will open up to similar methods of study their causal organism when once we have determined upon specific stains and differential methods. There appears to us to be little doubt that every bacterial infection is a bacteriemia, and it seems not improbable that in every bacteriemia the causal organism is excreted through the urine and the feces.

SIGNIFICANCE OF THE FOREGOING

The import of this and of similar studies by other investigators is at once vital in its bearing on society at large. The physician is confronted with the certainty that he has no more than begun the crusade against tuberculosis. He has perhaps even overestimated the possibility of its complete ultimate control. Without the slightest desire of uttering a pessimistic word, and with the knowledge that in the clearest understanding of the truth lies the best hope of ultimate accomplishment—on the basis of this study we feel dubious as to the extinction of the disease by human means. No more likely is it that the discharges from the typhoid or cholera or dysenteric patient will always

or even usually (except in hospitals) be effectually destroyed, and thus prevented from polluting the air we breath and the drinking supply, than that tuberculosis shall more than be inhibited in its spread. Granting as we now must that the infection is scattered broadcast for days and weeks, and perhaps months, before signs and symptoms demand a study of the case, it will be seen at a glance into what a labyrinth wanders the quest for its extermination and control.

Urine, sputum and feces are virulent, whether wet or dry, and for an indefinite time, the very indefiniteness of which renders them positively antagonistic to the health of the community until the bacillus or some equally positive destructive force places the sufferer under the sod.

The studies of Lord¹¹ have shown us that one fly-speck may contain as many as 5,000 tubercle bacilli; further, that thirty infected flies deposit in three days from 6,000,000 to 10,000,000 tubercle bacilli. We are, therefore, starting some centuries late in the destruction of flies.

Friedmann has injected tubercle bacilli into the vagina of a guinea-pig just after coitus, and later demonstrated the bacillus in the embryo. We, therefore, not only have on our hands the destruction of insects, but the prevention of marriage among the tuberculous. And yet, in spite of this knowledge that urine and feces and sputum and semen all carry, under favorable conditions, the certainty of a spread of the disease—in future rather because than in spite of this—there will be disinfected many an otherwise ignored or neglected source of contagion.

In so far as we arrive a step nearer a comprehensive realization of the armament, the subtlety, and the ubiquity of the tubercle bacillus; in just the proportion that our effort at control is relentless and systematic; in just that measure will we render a dayspring of true health conceivable, and lighten with hope this toilsome burden of man.

ANEMIAS OF INFANCY *

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The blood of infants under 2 years differs normally in certain of its characteristics from that of adults. The hemoglobin, relatively high for a time after birth, rapidly falls to a minimum of 55 or 60 per cent. in the first three weeks, then gradually rises to 70 per cent. at about six months, where it remains during the rest of infancy. There are, moreover, normally great variations in different individuals and in the same individual at different times. The number of red corpuscles is somewhat larger than in adults, averaging between 5,500,000 and 6,000,000 per c.mm. During the first few weeks of life there is more or less variation in the size and shape of the red cells, and nucleated forms are not very unusual during the first few days.

11. *Pub. Mass. Gen. Hosp.*, 1906, 1.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908. Owing to lack of space, the article is here abbreviated by omission of the portion relating to leukemia. The complete article appeared in the *Transactions of the Section* and in the author's reprints.

The number of white corpuscles per c.mm. is somewhat larger than in adults, averaging from 10,000 to 14,000. The relative proportions of the various forms of leucocytes are also considerably different. The average figures are roughly as follows: Small mononuclear, 40 to 50 per cent.; large mononuclear, 10 per cent.; polynuclear neutrophils, 35 to 45 per cent.; eosinophiles, 1 to 5 per cent. That is, the proportion of mononuclear forms is considerably greater, and that of the polynuclear neutrophils considerably smaller than in adult life. The mononuclear cells, moreover, are not merely lymphocytes, but vary much, not only in the size of the cell as a whole, but also in the size of the nucleus and in the amount of protoplasm. Myelocytes are occasionally found under normal conditions in the first few weeks of life, but never later (Zelenski and Cybulski¹). The neutrophilic blood picture after the first few weeks is much like that of the adult, except that there are rather more corpuscles at the extreme right. Esser thinks that the blood picture shifts to the left when infants are artificially fed, but Zelenski does not agree with him.

Blood changes develop more easily and more frequently as the result of various morbid conditions and disease in infants than in adults. All the changes seen in the blood of adults as the result of disease are aggravated in infancy. The tendency is always to revert to a younger or to the fetal type of blood. All forms of blood disorders in infancy are apt to be associated with splenic enlargement. As the result of this tendency to aggravation of changes and to reversion to a younger type of blood, the red corpuscles show much greater variety in size and shape and many more nucleated forms are seen than under similar pathologic conditions in the adult. If, as seems probable, the red color of the marrow in infancy indicates that the whole marrow of the long bones is already occupied in the manufacture of red corpuscles, there can be no reserve power of formation at this age, as there is in the adult. This may explain why children bear hemorrhage so badly and why it is that they become anemic on such slight provocation.

Leucocytosis also develops more rapidly and to a greater degree, both in normal and abnormal conditions, than in later life. The physiologic leucocytosis of digestion, for example, is decidedly greater in infancy than later. The type of leucocytosis, moreover, is not as constant as in adults, in whom the increase of white cells is largely in the polynuclear neutrophils. In infancy the increase is sometimes in the lymphocytes, sometimes in the large mononuclear forms, sometimes in the polynuclear neutrophils, and sometimes, even, in the eosinophiles. Leucocytosis is more apt to occur in blood conditions associated with splenic enlargement than in those without it. Myelocytes occur in less severe conditions and in greater numbers than in adults (Zelenski and Cybulski¹). An increase in the number of eosinophilic cells, even if considerable, is not uncommon and seems to be of little significance.

The present theory as to the development of the leucocytes explains quite satisfactorily the peculiar type of leucocytosis in infancy. It is now believed that both the granular and the non-granular cells are derived from one common parent cell from which the red corpuscles are also derived. This parent cell is almost

identical in character with the large lymphocyte, and is the first to appear in the fetal blood.

During the process of development a gradual differentiation of function takes place in the blood-forming organs, as the result of which the lymphoid cells of the marrow produce only granular cells and those of the adenoid tissue only non-granular cells, or lymphocytes. This specialization, however, is never so complete but that when there is a demand for a greater number of cells of any type the lymphoid cells of any of the blood-forming organs are able to produce this type. Although it is probable that in the infant, as in the adult, the granular cells are derived exclusively from the marrow and the non-granular cells almost, if not absolutely, exclusively from adenoid tissue, yet the nearer the organism stands to the fetus the more easily can a return to fetal conditions take place, and the lymphoid cells of the marrow assume vicariously the function of producing lymphocytes and those of the adenoid tissue that of producing granular cells. There is, moreover, considerable pathologic evidence to show that such a vicarious function does actually take place in some of the blood disorders of infancy.

The relative and absolute excess of the non-granular cells which is characteristic of the blood in infancy indicates an unusual degree of activity of the adenoid tissue at this time of life. This activity of the adenoid tissue is of great importance pathologically because it is a well-known fact that the more active a tissue is the more likely is it to become diseased. Moreover, it is a fact that in the blood disorders of infancy affections of the adenoid tissue dominate the picture, while those of the marrow are extremely rare.

The percentage of hemoglobin is almost always relatively low in the blood disorders of infancy. This is presumably due to the facts that the infant normally receives an insufficient supply of iron in its food, and that the reserve of iron present in the liver at birth is not large enough to keep the percentage of hemoglobin at the adult standard. This reserve of iron may, moreover, be insufficient and in any event is comparatively easily exhausted.

In all the blood disorders of infancy, therefore, the most characteristic features are the relatively low percentage of hemoglobin, the relatively large number of non-granular cells and the marked morphologic changes in the red corpuscles. The blood picture may change very rapidly in children, corresponding to several types in a few weeks, and thus rendering the diagnosis extremely difficult.

It is customary to divide the diseases of the blood in adults into primary and secondary anemia and leukemia, including chlorosis and pernicious anemia among the primary anemias. The classification of the diseases of the blood in infancy is, however, not so simple, several of the types met in later life being entirely or apparently entirely lacking and other types not seen in later life being very common.

CONGENITAL ANEMIA

It is probable that Hutchison is right in recognizing a congenital anemia. In some of these cases it seems as if the reserve of iron at birth is insufficient. In others it is possible, but not proved, that there is a congenital defect in the bone marrow. In still other instances, it has followed a marked icterus neonatorum, this, perhaps, being a sign of excessive blood destruction at birth.

1. Jahrb. f. Kinderh., 1904, ix, 884.

CHLOROSIS

Much has been written recently, especially by the French, with regard to chlorosis in infancy. Some authors speak of it as chlorosis and apparently consider it the same disease as the chlorosis of young girls. Others doubt that it is chlorosis and prefer the term oligosideremia (Rist and Guillemot²), while still others speak of it as the chlorotic type of anemia in infancy. There can be no doubt that cases showing the type of blood seen in the chlorosis of young women are found not infrequently in infancy. There can be no doubt, too, that the clinical picture in these cases is somewhat different from that seen in the average secondary anemia at this age. The babies have a yellowish pallor; they are fat instead of thin; they are apathetic instead of irritable; the symptoms of disturbed digestion are comparatively slight; cardiovascular murmurs are common. There is also no question but that they improve very rapidly when iron is given. The following case is an example of this type of anemia:

CASE 1.—*History*.—No. 2,592 was seen when 23 months old. Her mother had died of cancer which she had during the pregnancy. The baby had always been fed on modified milk. She had had a number of digestive upsets when about a year old. She often seemed nauseated, but did not vomit. The bowels had always been regular. She had never had any other illnesses.

Examination.—She was well developed and nourished and moderately pale. There was a venous hum in the neck and a faint systolic murmur at the base of the heart. There was a slight rosary but no other signs of rickets. The liver was palpable 1 cm. below the costal border. The spleen was not palpable. There was no enlargement of the peripheral lymph nodes. The lungs were normal. The urine was normal.

Blood: The blood showed hemoglobin, 50 per cent.; red corpuscles, 5,122,000; white corpuscles, 11,300; mononuclear, 31 per cent.; polynuclear neutrophils, 65 per cent.; eosinophiles, 1 per cent.; mast cells, 3 per cent. The red corpuscles showed some variation in size and shape and moderate achromia. There were no nucleated forms.

She took her food well, did not vomit and had normal movements. She was listless and quiet and her temperature was subnormal. She improved very rapidly when iron was given.

There seems to be no justification for considering these cases to be chlorosis. They occur indifferently in boys and girls and have no pathologic connection with the nervous or genital systems. They are in most cases digestive in origin, but are apparently more likely to develop in infants whose reserve supply of iron was, as the result of premature or twin birth, deficient at birth or has been exhausted from some cause, such as hemorrhage, or in those who have been kept too long on a diet deficient in iron, such as milk.

The resemblance of the blood picture to that of chlorosis is easily explained by the facts that the percentage of hemoglobin is normally relatively low in infancy and that the number of red corpuscles is larger at this age than later. A diminution in both, therefore, gives a combination like that found in chlorosis in later life. This leads to confusion unless these facts are taken into consideration. Moreover, owing to the comparatively small reserve of iron, almost all anemias in infancy have a relatively low percentage of hemoglobin.

It is also not uncommon to see the chlorotic type of blood develop in the course of anemias in infancy and

disappear later; in fact, this type of blood is almost always present to a greater or less degree at some time or other in the course of every anemia in infancy. This is especially true in the early convalescent stage of secondary anemia. The ready response to iron in these cases is no proof of their essential nature, as all but the severest forms of anemia in infancy are very favorably influenced by iron and many of them do not respond materially to treatment until iron is given.

It is safe to conclude, then, that while anemia of the chlorotic type is common in infancy, the disease chlorosis probably does not occur at this age.

PERNICIOUS ANEMIA

There is great difference of opinion as to whether or not pernicious anemia occurs in infancy; all agree, however, that if it does occur it is extremely unusual. Hutchison³ could find but one case, that of Rotch and Ladd, which he considered genuine. The subsequent course of this case, however, shows that it was certainly not one of pernicious anemia. Simon⁴ accepts but four cases as genuine.

The diagnosis of pernicious anemia at this age is extremely difficult, if not impossible, because at this period any secondary anemia may, for the reasons already detailed, take on the characteristics which are considered pathognomonic of this disease in later life. The presence of marked variation in the size, shape and staining characteristics of the red corpuscles, of nucleated forms, whether large or small, of myelocytes, even if in considerable numbers, and of a relative lymphocytosis are, therefore, of little assistance in diagnosis at this age. Not even an increased globular value is pathognomonic. A fatal termination is also of little value in diagnosis because many of the severe secondary anemias are also fatal. The fact that the blood plates are diminished in pernicious anemia and increased in secondary anemia in adults, is of some importance in diagnosis at this age. So far as I know, there are no data as to this point in relation to the anemias of infancy. It is safe to assume, however, that if pernicious anemia does occur in infancy the characteristics of the blood are the same as in later life, and that the metaplastic type is by far the more common. Petrone has reported the only case of the aplastic type of which I am aware. This was in a baby of ten months in whose blood there were no nucleated red corpuscles or megalocytes, although the hemoglobin was only 12 per cent. and the red corpuscles numbered 1,400,000.

The conclusion seems justified, therefore, that pernicious anemia rarely, if ever, occurs in infancy, and that if it does the blood shows the same peculiarities as in later life and that it is almost universally of the metaplastic type.

SECONDARY ANEMIA

The characteristics of the blood and blood-forming organs in infancy, which have already been mentioned, make the infant especially liable to become anemic from the action of all sorts of debilitating and injurious conditions. These conditions may act either on the blood-forming organs or on the blood itself, rendering the former less capable of forming blood or increasing the destruction of the latter. However produced, secondary anemia in infancy is apt to assume a severity rarely seen

2. Bull. de la Société Méd. des Hôpitaux, 1906, Nov. 9; Abst. in Arch. de Méd. des Enfants, 1907, x, 312.

3. Lancet, London, 1904, i, 1,253.

4. Rev. mensuelle des mal. de l'enfance, 1907, xxv, 145.

Blood: April 4: Hemoglobin, 40 per cent.; red corpuscles, 4,054,000; white corpuscles, 13,000; mononuclear, 91.7 per cent.; polynuclear neutrophiles, 4.2 per cent.; eosinophiles, .5 per cent.; myelocytes, 3.1 per cent.; mast cells, .5 per cent. One normoblast to 250 white cells.

April 13: Hemoglobin, 45 per cent.; red corpuscles, 3,094,000; white corpuscles, 24,000; mononuclear, 41 per cent.; polynuclear neutrophiles, 38 per cent.; myelocytes, 18 per cent.; mast cells, 3 per cent. Marked poikilocytosis. Moderate achromia. Some stippling. Three normoblasts seen in counting 200 white cells.

April 24: Hemoglobin, 50 per cent.; white corpuscles, 45,000; mononuclear, 37.5 per cent.; polynuclear neutrophiles, 40.5 per cent.; eosinophiles, 2 per cent.; myelocytes, 20 per cent. Nine megaloblasts and 12 normoblasts seen in counting 200 white cells.

May 9: Hemoglobin, 60 per cent.; red corpuscles, 3,789,000; white corpuscles, 23,000; mononuclear, 62 per cent.; polynuclear neutrophiles, 29 per cent.; eosinophiles, 3 per cent.; myelocytes, 6 per cent. Moderate macrocytosis and slight poikilocytosis. Sixteen megaloblasts and 8 normoblasts seen in counting 300 white cells; also an occasional nuclear figure.

May 27: Hemoglobin, 80 per cent.; red corpuscles, 3,440,000; mononuclear, 55 per cent.; polynuclear neutrophiles, 40 per cent.; eosinophiles, 4.5 per cent.; myelocytes, .5 per cent. Slight poikilocytosis; 6 normoblasts seen in counting 200 white cells.

June 24: Hemoglobin, 80 per cent.; red corpuscles, 5,600,000; white corpuscles, 22,000; mononuclear, 63.3 per cent.; polynuclear neutrophiles, 32.6 per cent.; eosinophiles, 2.1 per cent.; myelocytes, 2 per cent. Slight poikilocytosis. No macrocytosis; 3 megaloblasts and 8 normoblasts seen in counting 300 white cells.

During this period the child had taken its food well and rarely vomited. The movements had been fair, better toward the end. The weight had increased from 5,340 grams to 5,910 grams. The treatment had been buttermilk and citrate of iron, gr. $\frac{3}{4}$, subcutaneously, every other day. The baby then left the hospital, but reappeared at the Floating Hospital a week later. The physical examination was the same as when she was first seen.

Urine: Normal color, acid, slightest possible trace of albumin, a few leucocytes and squamous cells, an occasional red blood corpuscle, no casts.

Blood: July 2: Red corpuscles, 5,392,000; white corpuscles, 51,400; mononuclear, 41 per cent.; polynuclear neutrophiles, 59 per cent.

Died July 8.

Autopsy (by Dr. Wohlbach).—There were marked signs of rickets. The spleen was long and narrow. The estimated weight was 250 grams. The color was deep brownish-red, the consistency firm. On section the cut surfaces were smooth and deep red. The corpuscles and trabeculae were easily visible, as in the normal spleen. A very small amount of pulp was obtained by scraping. The liver was normal in size. The capsule was smooth, the consistency normal, the color pale brownish-red. On section the lobular markings were barely visible. Bone marrow: That in the vertebrae was deficient in color and amount; that from the femur abundant, dark grayish and fairly firm in consistency. There were in addition an organized pneumonia, acute bronchitis, chronic fibrous pleuritis, lymphatic hypertrophy, atrophy of the thymus, dilatation of the stomach and subpericardial ecchymoses.

Microscopic examination of spleen: The splenic nodules were numerous, large and irregular in shape. The germinal centers were very large and showed numerous mitotic figures. The pulp showed a slight increase in the reticulum. The sinuses and reticular tissue contained many large cells with granular protoplasm resembling myelocytes. These cells had either blue or purple staining protoplasm, the stain used being methylene blue and eosin. Groups of such cells were found surrounded by nucleated corpuscles, forming foci similar to the erythroblastic centers of the bone marrow. There were also many mononuclear eosinophiles with large nuclei, cells resembling those at the germinal centers of the nodules, and plasma cells. There was moderate injection of the sinuses with blood. There

were many polynuclear leucocytes in the pulp and sinuses. Many were fixed in the act of migrating from the sinuses.

Liver: The general arrangement of the lobules and columns of cells was normal. The liver cells were normal, except in places where they were slightly compressed by the crowding of the sinusoids with myelocytes. This was most marked just beneath the capsule. There were both basophilic and neutrophilic myelocytes singly and in groups. There were also many nucleated red blood corpuscles, often in close relation to clumps of myelocytes. Various types of nucleated reds were found, so that these collections of cells resembled those found in the spleen and in the bone marrow. The sinusoids contained everywhere much blood. The blood in the large vessels contained an excess of white corpuscles, in which large cells resembling myelocytes predominated. Many mononuclear eosinophiles were present in the sinusoids and in the blood of the large vessels.

Kidney: There was marked cloudy swelling of the convoluted tubules with slight fat vacuolation at the bases of the cells. The glomeruli, except for a few of fetal type, were normal. There were in the cortex a few elongated radial areas of connective tissue increase. These regions contained glomeruli of the fetal type and atrophic tubules. There was marked lymphoid and plasma cell infiltration and a few mononuclear and polynuclear eosinophiles.

Ileum: The solitary follicles were large with large and active germinal centers.

Tonsils and mesenteric and cervical lymph nodes: These all contained large and very active germinal centers. They all contained numerous mononuclear and polynuclear eosinophiles.

Bone marrow: That from the femur and vertebra showed marked activity. There were in both many erythroblastic centers, and nucleated red corpuscles were everywhere abundant. There was a great increase in the number of eosinophilous myelocytes. Megalokaryocytes were present in about normal numbers.

Diagnosis: Hematopoietic spleen and liver. Chronic focal nephritis and parenchymatous degeneration of kidneys. Lymphoid hyperplasia.

In spite of the frequency of these conditions, and in spite of the frequency of a fatal termination, pathologic data are comparatively few. The chief changes in the spleen are an increase in the connective tissue, usually associated with a diminution in the pulp. It never shows any changes in any way resembling those of leukemia, the changes being of the same sort as those found in other cachectic conditions, such as rickets (Sasuschin⁵) and syphilis (Hutchison³). The liver shows simple parenchymatous changes, fatty degeneration, such as is seen in all severe anemias, or simply lymphoid infiltration. The bone marrow shows nothing abnormal, merely the signs of increased activity. There are no changes suggestive of leukemia or in any way characteristic. The lymph nodes, if not normal, show merely the changes of chronic adenitis. Lymphoid infiltration has been occasionally found in the intestine.

Certain authors believe that anemia with splenic tumor in infancy is an aleukemic stage of leukemia or that it is leukemia modified by the peculiarities of the infant's blood and blood-forming organs. Aleukemic stages of leukemia certainly do occur, even in infancy, as is shown by the case reported in this paper. No one, however, has ever satisfactorily described a case of anemia with splenic tumor in infancy which has later changed to a true leukemia. No pure case of myelogenous leukemia has ever been reported, moreover, although anemia with splenic tumor is not at all uncommon at this age. Finally, the pathologic changes are radically different. The view that anemia with splenic tumor in infancy is merely leukemia modified by the

age of the patient is hardly tenable, not only because of the reasons just given, but also because true leukemia does occur at this age. Moreover, many of these cases recover entirely and the splenic tumor disappears.

It has been stated that these cases do not respond to treatment with the x-ray while cases of true leukemia do, and this statement has been advanced as a further argument against their leukemic nature. A case of Lommel's,⁶ however, improved markedly under treat-

the changes in the bone marrow are not those of pernicious anemia. Moreover, it is extremely doubtful if pernicious anemia occurs at this age.

A study of a large number of cases of anemia with splenic tumor shows that all grades of anemia, with or without leucocytosis, may be found when the enlargement of the spleen is inconsiderable. The cases analyzed in Table 1 illustrate this point.⁷

Patient 2201 had a systolic murmur in the heart;

TABLE 1—ANALYSIS OF CASES OF ANEMIA WITH SLIGHT SPLENIC ENLARGEMENT

No	Age in Months	Spleen, Cm below ribs	Per cent. Hemoglobin.	Red Corpuscles	White Corpuscles	Small Mononuclear	Large Mononuclear	Polynuclear Neutrophils	Eosinophiles	Myelocytes.	Mast Cells.	Morphologic Changes	Etiology.
2526	18	2	65	5,872,000	22,600	31	65	1	..	2	Slight polkilocytosis. Some macrocytes, 1 normoblast, 1 megaloblast to 400 white cells.	Tuberculosis.	
2019	16	2	45	4,700,000	21,900	67	5	26	1	1	..	Marked variation in size, shape and amount of hemoglobin in red cells. No nucleated forms.	Milk too long.
2204	11	2	20	3 083,000	23,000	55	43	45	1	0.5	Slight variation in size and shape of red cells. Slight polychromatophilia. 1 megaloblast to 500 white cells.	Improper feeding.	
2608	6	3	45	2,499,000	8,000	36	60	..	4	Macrocytes predominate. Some microcytes. Slight polkilocytosis. Moderate achromia. 7 megaloblasts and 10 normoblasts to 200 white cells.			
2899	13	2	25	1,256,000	9,000	47.5	49	..	3.5	..	No achromia. Slight polkilocytosis. 10 megaloblasts and 7 normoblasts to 200 white cells.		
2917	11	1	30	1,206,000	7,500	69.5	28	1	1.5	..	Marked achromia and polkilocytosis. Excess of macrocytes, 3 megaloblasts and 5 normoblasts to 400 white cells.	Improper feeding. Bronchopneumonia.	

TABLE 2—ANALYSIS OF CASES OF ANEMIA WITH MARKED SPLENIC ENLARGEMENT

No	Age in Months	Per cent Hemoglobin	Red Corpuscles	White Corpuscles	Small Mononuclear	Large Mononuclear	Polynuclear Neutrophils	Eosinophiles	Myelocytes	Mast Cells	Morphologic Changes	Etiology
2020	16	55	6,000,000	15,000	50	6	40	3	1	..	Moderate variation in size and shape of red cells. No nucleated red cells.	?
1300	19	40	4,000,000	18,700	34	13	51	..	2	..	Marked variation in size, shape and staining reaction of red cells. 9 megaloblasts and 16 normoblasts to 500 white cells.	Gastrointestinal.
2363	20	50	4,090,000	15,000	34	4	59.5	0.5	1.5	0.5	Slight variation in size and shape of red cells. Marked polychromatophilia. 8 megaloblasts and 2 normoblasts to 200 white cells.	?
1818	21	55	3,800,000	37,600	16	5	77	0.5	1.5	..	Moderate variation in size and shape of red cells. Slight polychromatophilia. 1 megaloblast to 500 whites.	?
1775	16	25	2,392,000	34,400	55	10	35.5	1	1	0.5	Some polychromatophilia. No nucleated red cells.	Prematurity
2827	19	30	2,341,000	7,000	64.5	24.5	1	..	..	..	Marked achromia and polkilocytosis. No nucleated red cells.	Gastrointestinal
2404	14	35	1,962,000	13,400	36	4	56	2	1	1	Character of red cells? 4 normoblasts to 100 white cells.	Gastrointestinal
1952	16	15	904,000	9,600	28	8	62	..	2	..	Watery and sticky. Considerable variation in size and shape of red cells. Marked polychromatophilia. 4 megaloblasts, 5 normoblasts and 1 microblast to 100 white cells.	Gastrointestinal

ment with the x-ray, and the autopsy a year later showed a normal spleen and no evidences of leukemia.

The theory that anemia with splenic tumor in infancy occupies a position midway between pernicious anemia and leukemia was advanced at a time when the morphologic changes in the blood were not as well understood as at present and hardly deserves serious consideration. The postmortem appearances are not characteristic of pernicious anemia, iron is not found in the liver and

2608 a very large liver and marked edema; 2899 considerable edema; 2917 slight edema, ecchymoses and hemorrhage from the nose. The first three of these patients improved, two were discharged unimproved and the last died.

Further study shows that there may be, in some instances, extreme enlargement of the spleen with almost no changes in the blood, while in others the blood shows

6. *Munchen med Wchnschr.*, 1905, III, 904.

7. *Boston Med and Surg Jour.*, 1894, CXXXI, 133, 1903, CXLIII, 373.

most marked changes. The cases analyzed in Table 2 illustrate these points. In all of these the spleen reached to the anterior superior spine, filling the flank.⁷

The liver was enlarged in 2020, 1775, 2827 and 1952, but not in the others; 1952 had edema, ecchymoses and hemorrhages from the nose. Systolic murmurs were heard in 1818 and 2827; 2363, 1300, 1818, 2355, 2827 and 2404 improved under treatment; 1300 was well and the splenic tumor was gone in eighteen months; 1775 and 1952 died.

Splenic tumor is not uncommon in infancy when there is no anemia. The anemia may improve or entirely disappear without any change in the size of the spleen. The following cases are examples:

CASE 13.—No. 2827. February 19, hemoglobin, 30 per cent.; red corpuscles, 3,344,000.

March 3: Hemoglobin, 40 per cent.; red corpuscles, 3,200,000.

March 16: Hemoglobin, 45 per cent.; red corpuscles, 3,408,000. Size of spleen remained the same.

CASE 14.—No. 1818. May 26: Hemoglobin, 35 per cent.; red corpuscles, 3,800,000; white corpuscles, 37,600.

absence or degree of anemia. Having no causal relation to each other, they must, when associated, be due to some common cause. They are both found independently as the result of disturbances of nutrition of various sorts. The pathologic changes in the spleen are the same whether the enlargement is or is not associated with anemia. The same blood changes are found both with and without splenic tumor. These blood changes are the same as those found in the ordinary secondary anemias without splenic tumor. It seems reasonable to assume, therefore, that when they are associated they are both manifestations of disturbances of nutrition. There is, therefore, no justification for putting cases of anemia with splenic tumor in a class by themselves under the head of splenic anemia, anemia infantum pseudo-leukemica, and so on. They should rather be classed as cases of secondary anemia with splenic tumor. It may be, however, as Rist suggests, that this, although the most satisfactory, is too simple an explanation and that the future will justify some other classification.

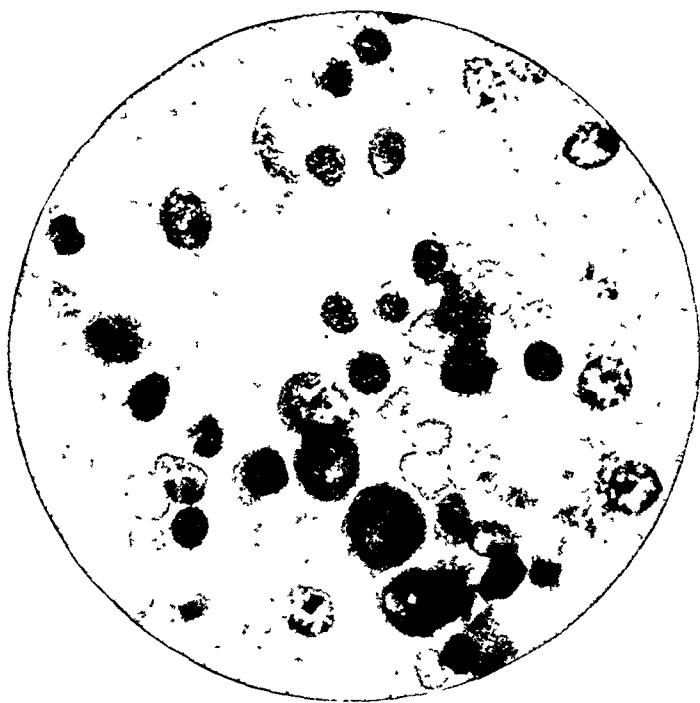


Fig. 1.—Liver (Case 12, No. 2,869) multiplied about 1,000 diameters. Hematopoietic center, showing myelocytes and nucleated red corpuscles.

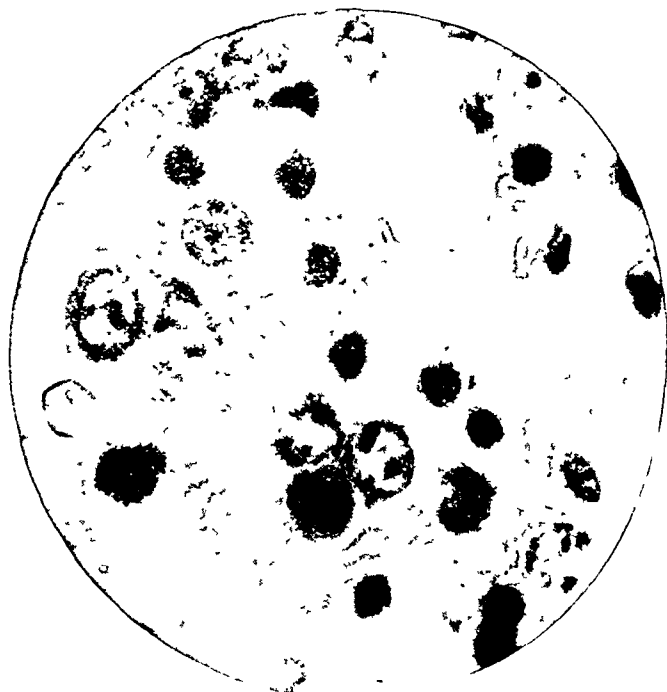


Fig. 2.—Spleen (Case 12, No. 2,869) multiplied about 1,400 diameters. Hematopoietic center, showing myelocytes and nucleated red corpuscles.

June 18: Hemoglobin, 65 per cent.; red corpuscles, 5,104,000; white corpuscles, 28,800. Size of spleen remained the same.

CASE 15.—No. 2363. May 3: Hemoglobin, 50 per cent.; red corpuscles, 4,000,000.

May 20: Hemoglobin, 75 per cent.; red corpuscles, 4,800,000. Size of spleen remained the same.

The size of the spleen may diminish without any improvement in the anemia. The following case is an example:

CASE 16.—No. 3171. April 13: Hemoglobin, 60 per cent.; red corpuscles, 1,640,000; white corpuscles, 20,100. Spleen reached to navel.

April 17: Hemoglobin, 65 per cent.; white corpuscles, 40,200. Spleen about one-half as large.

April 22: Hemoglobin, 50 per cent.; red corpuscles, 1,304,000; white corpuscles, 50,600. Spleen 3 cm. by 4 cm.

The anemia responds to the same treatment and in the same way as do secondary anemias without splenic tumor.

It seems evident, therefore, that there is no relation whatever between the size of the spleen and the presence.

Secondary anemia with splenic tumor may or may not be associated with leucocytosis. A division into two classes on this basis, as suggested by some Italian authors (Petrone⁸), hardly seems necessary or justifiable, however. The division of the cases of secondary anemia with splenic tumor and leucocytosis into splenic anemia with myelemia, splenic anemia with lymphocythemia and even splenic anemia with eosinophilia (Labbé and Aubertin⁹), according to the predominance of the various forms of leucocytes, has been suggested. This division seems rather unnecessary and far-fetched, however, as the proportions of the leucocytes depend in these cases, as in the secondary anemias without splenic tumor, on the special chemotactic action of the causative condition.

Wolff,¹⁰ basing his opinions on an unique case of his own, has come to very different conclusions as to the

⁸ Arch. gen. de méd., June, 1907; abstr. in Arch. de méd. d'enfants, 1907, v, 752.

⁹ Rev. mens. d. mal. de l'enfance, 1907, xxv, 69.

¹⁰ Berl. klin. Wchnschr., 1906, xliii, 1565.

causation of these cases and as to the relation of the splenic tumor and the anemia. He removed the spleen from an 18-months-old baby with marked anemia. The blood before the operation showed 40 per cent. of hemoglobin, 467,000 red corpuscles and 37,800 white corpuscles. The infant gained two pounds during the next ten days and the blood then showed 51 per cent. of hemoglobin, 2,500,000 red corpuscles and 36,000 white corpuscles. The baby recovered entirely, and at the end of a year the blood contained 2,665,000 red corpuscles and 25,800 white corpuscles.

The spleen weighed 500 grams. There was marked induration due to thickening of the walls of the lacunae of the pulp but no enlargement of the Malpighian corpuscles. There was an infiltration with large cells of various sorts free from hemoglobin but no increase of the lymphocytes. There was, however, a large number of lymphocytes in the larger blood vessels.

He believes that as the improvement in the general condition and blood followed immediately on the extirpation of the spleen that this organ stood in a causal connection, that these cases originate in a primary disease of the spleen and that they, therefore, present a completely characteristic disease picture. He explains the anemia by an increased destruction of blood corpuscles in the spleen or by the production of substances in the spleen which cause an increased destruction elsewhere.

While he does not identify this disease with Banti's symptom-complex he thinks that they have so many points in common—splenic tumor, trabecular hyperplasia of the spleen, cirrhosis of the liver, improvement after splenectomy—that there is probably some connection between them. While there are many points of difference between the two conditions, the greatest obstacle to considering them identical is the fact that in Banti's symptom-complex the course is slowly progressive to death, while very many of the cases of anemia with splenic tumor in infancy entirely recover. It is very possible, however, that while the physical signs and blood picture are essentially the same in all cases, the pathologic processes are different in different cases and that certain of them are of the same nature as Banti's symptom-complex. In such cases removal of the spleen will undoubtedly do good. The great difficulty at present is to know how to recognize these cases.

ABSTRACT OF DISCUSSION

Dr. J. F. HULTGEN, Chicago: I should like to know how many children Dr. Morse examined in all and whether the children were absolutely normal or whether they were just recovering from some attack of gastric disturbance or some other condition. We know that there is a change in the blood picture following any disease, infectious or toxic, namely, a postinfective or post-toxic lymphocytosis. As to the blood picture returning to the infantile condition, I believe that Domenici of Paris invented that term and started a new line of investigation. This is the same as what happens when healing of any wound occurs. The attempt at repair of an injury is in the direction of a return to the fecal condition. As long as the body is in a vigorous condition the large mononuclear cells are increased in proportion to the degree of irritation. The predominance of lymphocytes in the hematology of the child is an exceedingly interesting and important question, one that has not been settled yet. We need young men to go into the study of hematology to work on it for years. The probability is that the lymphocytes do predominate in the normal infantile blood, but it should be demonstrated whether those children are perfectly normal at the time of examination.

Dr. Morse's statement that he sees no reason for calling "chlorosis" a number of cases that look like chlorosis at a later age pleases me very much. That the patients improve under iron is no proof. Iron is a specific for any secondary anemia. I think that chlorosis is an obsolete term and the quicker we discard it the better. As to the relation between iron and the blood picture, if we consider the nature of the ferments and proferments we can imagine that the iron excites a particular part of the hematopoietic system, whence the production of blood corpuscles. I think that Dr. Morse has slighted the eosinophiles somewhat. I think it is likely they are derived from the large mononuclear cells, but, just how, we do not know. But there is a distinct relation between the eosinophiles and digestion and there is a distinct and established relation between the infections and the eosinophiles. The eosinophiles are in the vanguard of the leucocytes. They disappear very early in infectious diseases and they stay away very long.

Dr. J. H. MASON KNOX, Baltimore: That there is no definite line of cleavage between these blood conditions is most important. One thing that should be considered in determining the degree of anemia in children or others, where there has been great loss of weight, is the concentration of the blood. Such children have anemia, but have a high percentage of hemoglobin and a large number of corpuscles, as determined by the usual method, because of the great loss of fluid. In such cases the determination of the specific gravity of the blood would be helpful in judging the degree of anemia.

Dr. JOHN LOVETT MORSE, Boston: My figures regarding the normal blood in infancy were based partly on my own observations and partly on the literature. I have been working on this subject for the last fifteen years and think that I have the cases to prove the points which I have made. The hemoglobin and the specific gravity go hand in hand. What the last speaker said about the concentrated blood in these babies is perfectly true. One has to guess at the degree of anemia in such cases.

Clinical Notes

OVARIAN CYSTOMA OBSTRUCTING PELVIS AT TERM

WITH RECOVERY AFTER CESAREAN SECTION

A. BELCHAM KEYES, M.D.

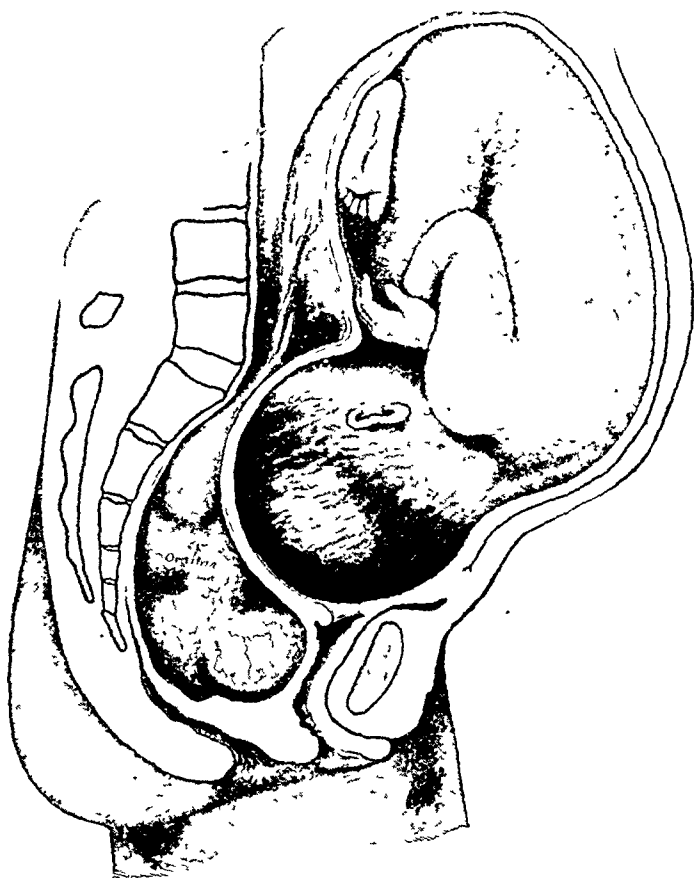
Assistant Professor of Gynecology and Obstetrics, Rush Medical College; Professor of Gynecology, Chicago Polyclinic; Attending Gynecologist to the Presbyterian, Polyclinic, and Deaconess Hospitals; Surgeon to Cook County Hospital
CHICAGO

Patient.—Mrs. C. F. H., aged 33, German, primipara, married. Since puberty the menses had been regular (every 28 days) till pregnancy began. The last menstrual period (remembered) began about August 25 and supposed quickening was first noticed about January 18.

Labor.—The patient entered hospital in labor June 19, 1908, complaining of having had violent labor pains for fifty-three hours. The uterine contractions were strong and rapidly increased in frequency to one in every two minutes. Abdominally the child's lower limbs could be distinctly palpated near the fundus uteri. The child's head was easily palpated above the pelvic brim and apparently not larger than the average. The fetal heart tones were from 180 to 200 and weak. The external pelvic measurements of the mother were normal. Vaginally the cervix uteri was found dilated enough to admit two fingers easily. The head was high up and could be reached with difficulty, position left occipito-anterior. The bag of waters was still intact but accidentally ruptured during the examination, resulting in the discharge of the liquor amnii with much meconium. The posterior vaginal fornix was bulged forward by something giving at first the impression of a loaded sigmoid and rectum, though it had not the doughy feel of feces but rather the elastic sensation of a cyst. So far as one could judge, the internal pelvic measurements were normal, though the promontory was covered by the

tumor. During a pain the head showed but little tendency to engage, while the mass posteriorly drove the posterior vaginal fornix markedly forward into the vaginal lumen, the head (apparently normal in size) also becoming more prominently outlinable on the anterior abdominal wall. In a well-formed woman with a normally shaped and situated uterus and with an absence of any pelvic contraction or marked increase in the size of the child's head or other parts above the normal, the only inference possible was the presence of a mechanical obstruction probably due to a tumor in the cul-de-sac of Douglas. Attempts to reposit the obstructing tumor above the pelvic brim while the patient was in the knee-chest position were fruitless.

Operation.—Preparations were immediately begun and the abdomen opened by a 12 cm. median (Wagner) incision extending from the umbilicus downward toward the pubis. Compresses were now carefully packed between the abdominal wall and the uterus (*in situ*) to avoid contamination of the peritoneal cavity. The uterus was then also incised in the anterior median line, upper third, encountering the placenta, which was rapidly shelled off at one edge and the child rapidly delivered, the cord doubly clamped, and divided. The afterbirth was now rapidly delivered when the uterus retracted. The uterine in-



An ovarian cystoma obstructing labor at term.

cision was now closed by catgut *à étages*, and all compresses being removed, the exploration of the cul-de-sac revealed a cystoma firmly incarcerated under the promontory. The patient was now placed in the Nelaton position and the intestines walled off with fresh compresses. The tumor was then lifted out of the cul-de-sac of Douglas and delivered whole, its long, thin pedicle ligated, divided and the stump covered with peritoneum. The abdominal incision was now closed with catgut and through-and-through silkworm-gut sutures. The mother made an uneventful recovery. Unfortunately, though the child was delivered within one hour of the time I first saw the case, it could not be resuscitated.

Tumor.—The cystoma was approximately of the size and tenseness of a half-filled two-quart fountain syringe, and as it lay on a flat surface measured 15x19x4 cm. Probably a more tense cyst could have been more easily displaced upwards.

The case is unique from the standpoint that the tumor must have been present before pregnancy began,

and teaches the necessity, at as early a date as possible in every pregnancy, of making a careful and systematic examination (a) as to whether there is any tumor present; (b) whether the pregnancy be intrauterine or extrauterine; (c) whether the uterus be retroverted, and (d) whether the pelvis is contracted or of normal dimensions.

100 State Street.

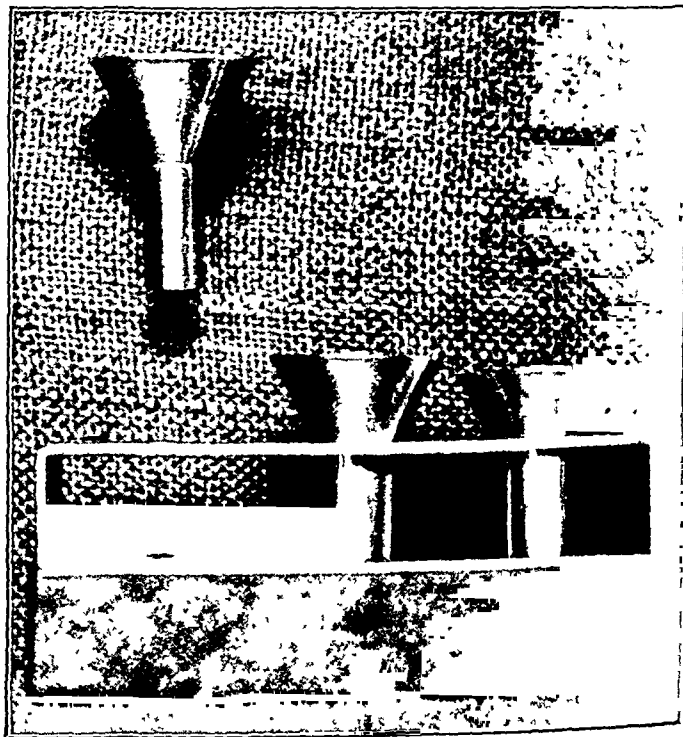
MOLD FOR CARBON DIOXID SNOW

R. L. SUTTON, M.D.

KANSAS CITY, MO.

When carbon dioxide snow is employed as a destructive agent in skin lesions it must first be molded into suitable shape. If a large area is to be attacked a closely packed mass of the substance may be altered as required by means of a sharp knife, but in the majority of instances a "pencil" best answers the purpose.

In making these cylinders the snow is quickly transferred from the chamois, where it collects as it escapes from the reservoir, to a matrix or form, into which it is tightly pressed by means of a small rammer. The



Mold for carbon dioxide snow.

form or mold commonly employed is simply a short piece of hard rubber, glass or metal tubing. No one but a person who has had experience in filling these small caliber tubes realizes the waste of time and material the process usually entails.

I have had made of German silver a set of three funnel-mouthed tubes, which renders this procedure a speedy and economical one. The internal diameter of the barrels measure 1, 2 and 4 cm., respectively, and all are of the same length, 4 cm. The freshly-made snow is transported from the chamois to the molds by means of a teaspoon.

Further to expedite matters the molds are set upright in a frame, the lower ends being sunk slightly below the surface of the platform. When the tube is filled the mold is withdrawn from the frame and the stick of snow pushed out.

HAMMOCK HEAD BANDAGE

SAMUEL E. NEWMAN, M.D.
ST. LOUIS

At the suggestion of several of my colleagues I wish to offer to the profession a new head bandage. Since an otherwise simple thing may be made complicated and incomprehensible by wordy details, I have tried to clearly illustrate each step of the procedure. The photographs

The ends of the hammock gauze are elevated above the head and the ears freed before the encircling bandage is continued around its circumference. (Fig. 3 and Fig. 6, B, C). The ends are dropped and the running bandage covers in the fold, thus made in the hammock (Fig. 4 and Fig. 6, D, E). All excess material is cut away. The procedure is finished by a few rounds of the roller bandage (Fig. 5 and Fig. 6, F).



Fig 1—Application of the hammock bandage, this is pulled taut and held by the patient.



Fig 2—A one inch or two-inch bandage is applied around the head.



Fig 3—The ends of the hammock are elevated, the ears freed and the encircling bandage is continued.

and diagrammatic drawings are self descriptive, and require little further explanation.

METHOD OF APPLYING THE BANDAGE

After the dressings have been placed on the wound the head is put in a hammock composed of two layers



Fig 4—The ends are dropped and the encircling bandage covers in the folds thus made.



Fig 5—The excess material is cut away and the procedure completed by a few rounds of the encircling bandage.

of gauze (Fig. 1). This is pulled taut and held by the patient. A one or two-inch bandage is applied around the head, running from the glabella of the frontal bone to a point just below the posterior occipital bone (Fig. 2 and Fig. 6, A, B). I have found a narrow starch bandage of advantage for this purpose.

ADVANTAGES

The "hammock bandage" is undoubtedly a simpler and more effective one than the time honored "skull cap," and I heartily recommend it to the profession. This bandage possesses the following advantages:

1. Simplicity and ease of application.

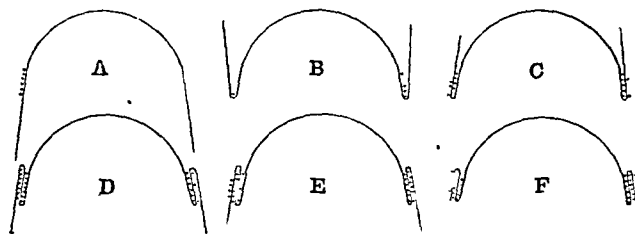


Fig 6—Schematic representation of the method of applying the hammock bandage.

2. May be used to cover a small area of the scalp or the entire surface.
3. Does not slip or come off if properly applied.
4. May be made to exert a moderate or firm pressure on the wound.
5. Economy of bandage material.

4900 Berlin Avenue.

Infant Feeding.—Giving infants some form of food that will be retained and cause gain in weight is not necessarily good infant feeding. The food must contain enough proteids and mineral matter to repair waste and produce new tissue, and enough fats and carbohydrates to supply energy; except, of course, when the infant is sick or suffering from indigestion, when it may be necessary to give temporarily a one-sided diet.—G. R. Pisek, in *Amer. Jour. Obst. and Dis. of Women and Children*.

A CASE OF POLYDACTYLISM

W. A. STROTHER, M.D.

BEDFORD CITY, VA.

The accompanying illustration shows an interesting case of polydactylism. The patient is a white woman, 35 years of age. She says that, so far as she knows, there is no history of polydactylism in her family. She has five children, all of whom are normal in this respect.

The supernumerary thumb here shown is well developed and shows a well-defined metacarpo-phalangeal joint, which is capable of flexion and extension to a slight degree. The phalangeal joint is also well defined and exhibits some degree of flexion and extension.



A case of polydactylism.

A supernumerary thumb on the other hand was stitched to the normal thumb in infancy, and the result of the union presents the appearance of a very wide thumb with a single wide nail.

IMPROVED METHODS OF APPLYING PLASTER SPICAS AND JACKETS

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ALBANY, N. Y.

My attention has been called many times (1) to awkward methods of applying spica bandages to patients relaxed by an anesthetic, after operating on an inguinal hernia, for instance; (2) to awkward methods of supporting the shoulders, head and feet while applying plaster-of-Paris bandages, as for coxitis, to adults and children when not under an anesthetic; and (3) to the frequency of threatened syncope in adult patients when suspended by Sayre's apparatus for the application of plaster-of-Paris jackets.

The following methods have been of much service to me in my practice and are presented in the hope that they may be helpful to others in solving these problems: The first is simple and the necessary accessories can be found in any hospital. The second is more complicated, but will find numerous uses in any hospital where much bone work is done (which means every hospital).

The device for applying a plaster-of-Paris spica to an anesthetized patient may be arranged as follows: At the foot of the operating table place a small table whose top is about eight inches below the level of the operating table. If tables of different height are not at hand the operating table can be raised on blocks. When ready to apply the spica bandage place the hip support on the low table in position and draw the patient down over

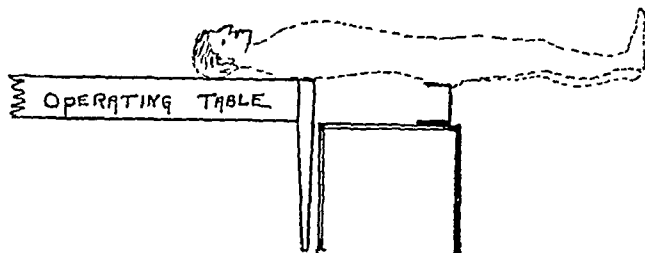


Fig. 1.—Improved method of supporting patient while applying a plaster-of-Paris spica bandage to secure immobility of the ulcerated and diseased bony surfaces.

the end of the operating table until his shoulders and head alone are supported on the operating table and his hips rest on the hip support, his legs being supported by an assistant.

The device for applying plaster-of-Paris spicas or jackets to conscious patients was suggested by the need

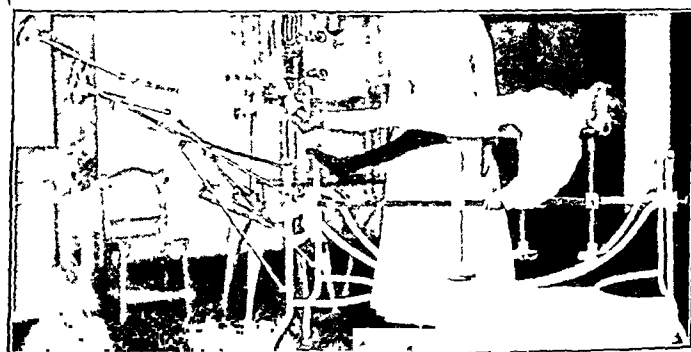


Fig. 2.—Stein apparatus.

of overcoming two difficulties. Adults commonly "faint" when a jacket is being applied by the Sayre suspension method. To avoid this syncope the extension is often relaxed to the detriment of the jacket. The difficulty with the Goldthwaite frame is lack of extension. It occurred to me that a modified Sayre's

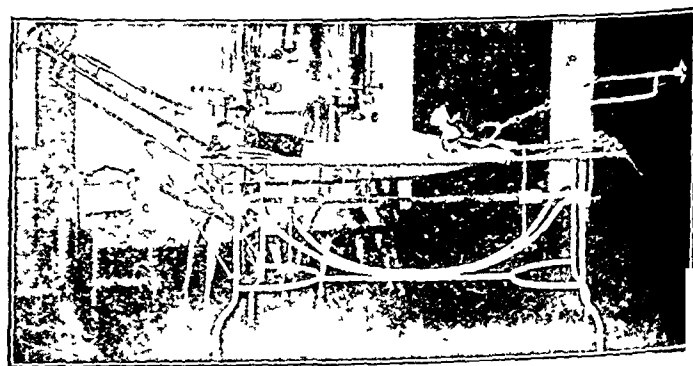


Fig. 3.—Improved method of supporting patient while applying a plaster-of-Paris spinal jacket to secure immobility of the diseased vertebra. This device combines the advantages of the Goldthwaite frame and the Sayre suspension methods. It obviates the discomfort of vertical suspension by head and arms. This advantage is particularly noticed in treating adult patients. Note that child is lying on a muslin stretcher support.

extension applied to a Goldthwaite frame would solve both difficulties. Just at this time I became acquainted with Stein's extension apparatus. With a few modifi-

ications this table has become a most valuable aid to my orthopedic work.

The original use of the Stein apparatus is clearly indicated in Figure 2. The objections to its usefulness as a general orthopedic table are: first, the fact that the original body supports are so large that they interfere with the application of the plaster bandages; second, that the leg extension arms should have joints permitting of any degree of abduction or adduction of the leg; and, third, that in applying jackets, hyperextension of the spine to relieve the pressure on the bodies of the vertebrae can be more readily obtained with the patient lying on the abdomen than on the back. Therefore modifications to the table were made as illustrated in the accompanying photographs and described below.

For applying spica bandages the apparatus is used as represented in Figure 2. except that a small metal hip support is substituted for the original large leather-covered hip support. For applying plaster-of-Paris jackets the supports in the original Stein apparatus are removed and a Goldthwaite frame is placed on top of the table resting at A-B-C-D (Fig. 3). In cases of lateral curvature the forcible corrective circles of Lovett can be applied to the Goldthwaite frame.

Thus one may have an excellent orthopedic table which can be used as an ordinary operating table or, by the attachment of the accessories, combines the virtues of Savre's, Goldthwaite's and Lovett's apparatus.

I am indebted to Dr. James F. Rooney of Albany for the excellent photographs of the apparatus.

98 Chestnut Street.

BARREL-HOOP SPLINT FOR FRACTURE OF THE CLAVICLE

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Fred W., aged 10, was struck by a street car on June 4, 1908, and sustained a complete oblique fracture of the middle third of the left clavicle. He was admitted to the New York Polytechnic Hospital and treated in the service of Dr. John A. Bodine.

A splint was made from a wooden barrel hoop long enough for the ends to fit snugly into the infraclavicular fossa while

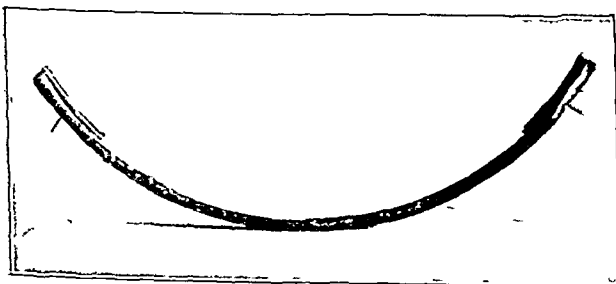


Fig 1—The barrel hoop splint

the shoulders were drawn upward, backward and outward, by an assistant standing behind the patient. A short piece of the hoop was fastened to the inner surface of each extremity of the splint. (Fig. 1.)

The nails were left projecting to prevent the bandage slipping. This extra piece made immobilization firmer and allowed free movement of the chest in breathing. The ends of the splint were then padded with cotton. A cotton pad was put in each axilla to prevent chafing. While the assistant held the shoulders upward, backward and outward the fractured ends were approximated and the splint applied and firmly secured by a figure-of-eight bandage. (Figs. 2-3.)

Dr. Bodine suggests that, in such cases, if there is not accurate coaptation of the fragments, a small roll pad may be placed above and below the seat of fracture and an adhesive strip secured to the back of the shoulder and brought down over the fracture, and fastened to the front of the chest, or used as a sling for the forearm of affected side.



Fig 2—The barrel hoop splint applied

Long strips of adhesive plaster were applied over the bandage to prevent loosening from slipping and stretching. The patient had no pain at the seat of fracture while wearing the splint, and used the arm of the affected side as freely as the other. Union was prompt and without deformity.



Fig 3—The barrel hoop splint applied, showing amount of rigidity secured in spite of arm motion

The advantages of barrel-hoop splint may be given as follows: 1. Simplicity and ease of application. 2. No discomfort to patient, nor detention from light work—nor from school, in case of children. 3. No possibility of shoulder or elbow-joint adhesion as an after result.

A REPORT OF FORTY-EIGHT NEW CASES OF
PARATYPHOID FEVER (TYPE A)

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AND

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The scientific investigations of the last decade have shown that paratyphoid has the same geographical prevalence as typhoid fever. Since Achard and Bensaude, in 1896, described the first two cases of this disease and called it *infection paratyphoidique*, several hundred cases have been recorded. Soon after Achard and Bensaude's discovery Vidal and Nobecourt isolated an organism from a post-typhoid abscess which was identical with that described by the former observers. Acting on Gilbert's suggestion, they named it para-coli infection. Later Cushing, Hewlett, Coleman and Buxton, Longcope, Libman and Meltzer reported cases in America.

In Germany, Schottmüller and Curth were the first to recognize cases of paratyphoid fever. Schottmüller was the first to divide paratyphoid bacilli into two groups, based on cultural and agglutination differences. De Feyer and Kayser confirmed the observation of Schottmüller and divided paratyphoid bacilli into two groups, A and B.

During the last five years a great many analogous observations have been reported, which nearly all belong to Schottmüller's paratyphoid, Type B. Infections with paratyphoid bacilli, Type A, are rare; in Germany, where typhoid cases have been closely studied, only a few cases of para A have occurred.

Netter is the only European who has reported a number of cases of paratyphoid fever caused by the para A bacillus. He reported seventeen cases, but his observations were made by agglutination tests only; blood cultures were not made. It appears that paratyphoid fever A occurs more frequently in the United States than in Europe.

METHODS OF INVESTIGATION

Before reporting our findings we wish to describe the methods we employed in making blood cultures and agglutination tests. From May 1, 1907, to May 1, 1908, there were 262 medical patients in the Allegheny General Hospital who had fever or abdominal symptoms or both. From every one of these patients 3 to 5 c.c. of venous blood was taken under aseptic precautions and put in 60 c.c. of a sterile mixture of two parts of calf bile, one part bouillon, 10 per cent. glycerin and 2 per cent. peptone. This was then incubated for fifteen hours at 37 C., after which it was inoculated on tubes of agar. The agar was then incubated at 37 C. for fifteen hours. At the end of that time it was examined microscopically, and if a motile Gram-negative bacillus was present it was inoculated in milk-sugar bouillon, grape-sugar bouillon, milk and litmus-whey. Eighty-one per cent. were negative, 11 per cent. positive typhoid, and 8 per cent. were para A positive. (For rapid, accurate, clinical work it is only necessary to put the blood in calf bile bouillon, incubate for fifteen hours and then inoculate the above-mentioned culture media with it. In this way it is possible to reach a diagnosis in a period of only thirty hours.)

All agglutination tests were made by Proescher's

method¹; the serum used was obtained from animals which had been inoculated with pure cultures of para A and para B bacilli and subsequently developed an agglutination-titer of 1 to 40,000.

Morphologically, the paratyphoid bacillus is similar to the typhoid bacillus, but is generally a little shorter and has from eight to ten flagella and possesses a high degree of motility. It stains with the usual anilin dyes and is Gram-negative. It ferments grape-sugar, but not milk-sugar, produces no indol, and does not coagulate milk. The surface growth on agar and gelatin can not be distinguished from typhoid cultures. The cultural distinctions between the two groups of paratyphoid bacilli is that A produces a constantly acid reaction in litmus-whey, the solution always being red, while B first turns litmus-whey red, then blue and continues alkaline. This difference is constant, but the agglutination test with an artificial serum is the most reliable method of differentiation. Para A is not so fatal to mice, guinea-pigs and rabbits as para B. The lethal dose of para A is a hundred times more than the lethal dose of para B.

The organisms isolated from all our patients were exactly the same, and they were identical with paratyphoid A bacilli obtained from other laboratories for comparison.

A complete report of our laboratory investigations, together with a review of all the cases that have been studied and reported throughout the world, will be published at a later date.

CHARACTERISTICS OF DISEASE

Etiology.—Season, age and sex play the same part in this disease as in typhoid fever. Most of the cases occur in September and October, but a few in March, April and May. In the 48 cases studied, 17 patients were females and 25 males. From 20 to 30 is the most susceptible period; 75 per cent. of the patients were in the third decade of life; 3 were under 20, being 15, 17 and 19 years old. Ten were between 30 and 40; one was 48, and another, the oldest, was 66. Six of the forty-two stated that they had previously suffered with typhoid fever. Their statements were probably correct, but we can not be positive.

Immunity.—Typhoid fever does not confer immunity from paratyphoid fever. An attack of paratyphoid fever usually immunizes from subsequent attacks. The period of incubation varies from two days to two weeks. Two persons who accidentally swallowed small amounts of a pure culture became ill, one five days and the other seven days after imbibing.

Onset.—This is not so gradual or insidious as in typhoid fever. Headache, backache, stiff neck, soreness of all the muscles, especially those of the back and legs, unnatural fatigue and anorexia are the initial symptoms in the majority of the cases. Fifteen per cent. of the cases start with acute catarrhal pharyngitis, sore throat, a dry, unproductive cough and chilly sensations. In 22 per cent. of the cases, the onset more closely resembles typhoid fever, the chief symptoms being nausea, vomiting, diarrhea and abdominal tenderness. Headache occurs in nearly all cases; epistaxis less commonly than

1. For Proescher's method of agglutination, see *Centr. bl. f. Bakteriologie*, 1902, abth. I, p. 400. On account of lack of time, the feces were only examined in ten cases; in four of them the para A bacillus was isolated. Methyl-green agar was found to be the best medium for this purpose. Urinary examination was made in fifteen cases, the bacteria only being recovered from one.

in typhoid: 20 per cent. of the patients complained of diarrhea and 25 per cent. were constipated. The tongue is covered with a thin white fur.

First Week.—Headache is the most constant symptom; toward the end of the week the spleen enlarges and becomes tender and a roseolar rash may appear on the abdomen. Headache usually stops before or early in the second week.

Second Week.—Slight tympany, abdominal distention and constipation or diarrhea occur. In contradistinction to typhoid fever, in this disease the appearance of the tongue is the same throughout the disease. It is moist, covered with a thin white fur and is normal in size and shape. The tip and edges are not clean. It does not become dry, swollen, brown, fissured and sore. From the seventh to tenth day, in most cases, the temperature begins to fall, the appetite returns and convalescence sets in.

Variations.—These are frequent in onset and course. According to the most pronounced symptoms of onset, the cases may be divided into three groups: 1, those in which nausea, vomiting, diarrhea and abdominal tenderness are the chief symptoms (22 per cent. of the cases belong to this group); 2, those in which the predominating symptoms are acute catarrhal pharyngitis, sore throat and cough (these constitute 15 per cent. of the cases); and, 3, the greatest number, the typical cases, in which the patients complain of severe headache, backache, stiff neck, marked soreness of all the muscles, but especially those of the back and legs and excessive fatigue. The most striking symptom in this group is the stiff neck. In some cases the onset is sudden; in all it is more rapid than in typhoid fever.

Temperature.—The temperature curve was not like the classical one described by Wunderlich. It rose less gradually, sometimes abruptly; the daily fluctuation was greater; the fastigium was much shorter and not so high. On the first, second and third days the evening temperature was $1\frac{1}{2}$ degrees F. higher than the evening temperature of the day before, and each morning there was a remission of a fraction of a degree. The highest temperature was reached the evening of the third or fourth day and was about 103 F. During the next three or five days the evening temperature maintained the same level; each morning there was a remission of 1 to $1\frac{1}{2}$ degrees. From the sixth to ninth day lysis began in most cases. The temperature fell a degree every evening and the morning remission was marked; the temperature became normal about the fifteenth day. Hyperpyrexia did not occur and the temperature in itself was never a dangerous symptom. After the temperature had been normal for a week, a relapse might set in and be of shorter, equal or longer duration than the initial attack.

Skin.—In one-third of the cases, those of patients in whom the temperature stayed about 100 F. for more than ten days, a roseolar eruption appeared on the abdomen and one on the chest. It consisted of discrete, circular, elevated, flattened papules, 2 to 4 mm. in diameter, which disappeared on pressure and reappeared when the pressure was removed: they lasted from three to six days and gradually faded away. No other signs appeared on the surface of the body, and in this the disease differed from typhoid fever.

Mouth.—When first observed the tongue was uniformly covered with a white fur, moist, did not become brown, dry, enlarged or fissured nor painful and rapidly

cleaned up when the temperature returned to normal. Acute catarrhal pharyngitis occurred in six cases; the mucous membrane was dry, red and injected. Parotid abscess occurred in one case. It was opened, drained and rapidly healed; the pus was not examined.

Respiratory System.—Acute catarrhal laryngitis, cough and bronchitis occurred at the onset in twelve cases. Pneumonia occurred in one case, that of a patient who had been ill in bed at home for three weeks, and was admitted with lobar pneumonia involving both lungs.

Circulatory System.—The pulse was from 80 to 110, and the pulse-temperature ratio was about the same as in typhoid fever. Microtism occurred in only three cases, which was in contrast to typhoid. The pulse was regular and of good tension. After the seventh day the pulse became slightly irregular in some cases. No heart lesion developed during the disease.

Gastrointestinal Tract.—Nausea and vomiting were present at the onset in some cases, but soon disappeared. In many patients the bowels were normal at onset and later became constipated. Unfortunately the stools were not studied. Slight tympany and distention occurred in some cases, but was of short duration. Abdominal pain and tenderness was present at the onset in nine cases. A mild diarrhea, which lasted less than a week, occurred in about 20 per cent. of the cases. The majority of the patients, while in bed, were constipated.

Urinary System.—The variation from normal in the urine was slight. Retention occurred in one case. In 25 per cent. of the cases the Diazo reaction was positive. The urine was examined for bacteria in fifteen cases, but was present in only one.

Liver and Spleen.—The liver was found enlarged in three cases. The area of splenic dulness was increased, the organ not palpable, in ten cases; in fourteen cases the spleen was palpable and tender.

Complications.—These are rare and probably never fatal. One patient developed a parotid abscess and recovered. A patient who had been ill in bed at home for three weeks was admitted with consolidation of both lungs and died in less than twenty-four hours after admission. No one can say whether the pneumonia was a complication of paratyphoid fever or the paratyphoid an occurrence in the course of some other disease.

Prognosis and Mortality.—The prognosis is far more favorable than in typhoid fever, since complications are few. Death is only a possibility. Recovery is rapid and uninterrupted in most cases. The mortality is less than 2 per cent.

CONCLUSION

Paratyphoid fever is a distinct disease, differentiated from typhoid fever by the following characteristics:

1. It is due to an infection by a bacillus which is not the typhoid bacillus.
2. The onset is more sudden, the duration shorter and the disease milder than typhoid fever.
3. Hyperpyrexia never occurs, complications are rare, and there are no sequelæ.
4. The mortality is less than 2 per cent.

On account of the variability of the initial symptoms, the maintenance of fever for more than two weeks in some cases and the frequent similarity of irregular cases to mild cases of typhoid fever, a positive clinical diagnosis can rarely be made. All require, and should have, for exact diagnosis, an examination of the blood and the recovery, growth and recognition of the bacteria.

The 48 cases described in this paper occurred in the service of Drs. O. Hail, Wolf and MacNaugher, members of the medical staff Allegheny General Hospital. We wish to express our indebtedness to them for the use of their clinical charts and records.

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Therapeutics

TOXEMIAS OF PREGNANCY

The disturbances of the last month of pregnancy and some of the severe conditions at parturition are due to varying causes, and the treatment that is efficient and satisfactory in one instance may not be efficient in another.

Dr. Collin Foulkrod, Philadelphia, in the *American Journal of the Medical Sciences*, October, 1908, well discusses this important subject.

He cites the following causes of toxemias due to or during pregnancy: These are intestinal indigestion; disturbances of the parathyroids and thyroid; disturbances in the fetal organism, in the placenta, in the kidneys, or in the liver. He emphasizes the seriousness of changes in the liver, and believes that when metabolic disturbances have involved the liver the patient's condition is serious.

He believes that 50 per cent. of pregnant women suffer from some form of intestinal disturbance, and it is certainly true that intestinal disturbances are concomitant with or preliminary or subsequent to most toxemias.

When instances occur which are positively demonstrable of serious toxemias being caused by prolonged constipation, it is certainly logical to presume that constipation even in a mild form is provocative of the absorption of toxins that should have been eliminated by the intestines. These toxins seriously impair the perfect activity of the liver, to which they first go through the portal circulation. If the liver is so continuously irritated it can not well do its normal work, and more or less toxins or irritants to metabolism soon get through this filter into the systemic blood and cause nervous, circulatory and kidney irritations. Such irritations at first, and perhaps continuously, may be inconsequential, but they may be the forerunners or the instigators of serious conditions in the latter part of the pregnancy. A primary axiom in pregnancy, then, should be that constipation must not be allowed, and such means must be inaugurated and persisted in as will prevent constipa-

tion, intestinal stasis, intestinal fermentation, putrefaction and the absorption of toxins. If any one of the digestive organs is not properly functioning it should be assisted, if possible, and the diet so arranged as not to aggravate this disabled organ, and to relieve it of as much work as possible.

It is now acknowledged, both physiologically and clinically, that the thyroid gland normally hypersecretates during pregnancy. This is doubtless necessary to neutralize the nitrogenous poisons that occur from the double metabolism of mother and child. If the thyroid does not secrete properly, various toxemias occur. A malsecreting thyroid can probably allow pernicious vomiting to occur during pregnancy, can certainly interfere with the nutrition of the fetus, can interfere with the health of the mother, and can allow puerperal eclampsia.

If by a careful study of the pregnant patient it is decided that the thyroid gland is not properly secreting, thyroid substance should be administered. The dose during pregnancy should be small. Just preceding parturition, if it is feared that eclampsia may occur, and especially if the kidneys are insufficient, thyroid should be given in large doses; and if eclampsia does occur, it should be given in very large doses. If a patient gives birth to a child showing imperfect development or symptoms of under-thyroid secretion, although it might not be a cretin, certainly thyroid should be administered to the mother throughout her subsequent pregnancies, unless the symptoms present forbade its use. A daily dose for a pregnant patient, short on thyroid secretion, should not be more than 0.20 gram (3 grains) once a day, while a patient who showed serious toxemia or critical symptoms of metabolic poisoning should receive 0.30 gram (5 grains) three or four times a day for a short period. A patient needing thyroid just before or during parturition may be given 0.60 gram (10 grains) once or twice, while a patient with eclampsia may be given 1.30 grams (20 grains) at one dose.

While Foulkrod speaks of disturbance of the function of the parathyroids being possibly a cause of toxemia, it has not yet been proved. Consequently under what conditions prepared parathyroid gland substance should be administered to the pregnant woman has not been determined, and therefore its administration would be empirical.

Malnutritions of the fetus and degenerations of the placenta may cause the formation and absorption of toxins that will poison the mother. Such toxemias partake of the nature of blood poisoning. The cause being discovered and improvement not soon taking place would seem to call for cleaning out the uterus—this, of course, after a consultation.

Foulkrod does not believe that primary kidney toxemias are so frequent as primary liver toxemias, but believes that a secondary kidney disturbance may be the consequence of almost any toxemia. This has doubtless many times been the cause for laying the blame of pregnancy toxemias on the kidneys when these organs have not been at fault.

As Foulkrod says, a pure uncomplicated true nephritic toxemia should certainly be discovered. A uremic condition from nephritis of pregnancy must almost always be a progressive condition. Consequently a progressive chronic nephritis can only be overlooked by utterly neglecting to make proper examinations of the urine. If a chronic nephritis, by evidences in the urine, shows a progressive inflammation, a final toxemia, due to allowing a pregnancy to continue too long before interference,

should be prevented. Consequently the most serious toxemias and eclampsias are those that do not present kidney symptoms or signs until the last moment, and these toxemias are due primarily to disturbances of other organs than the kidneys.

If the kidneys were previously healthy, i. e., if an insidious chronic interstitial nephritis were not present, a nephritis due to pregnancy should be quickly recognized by the albumin in the urine. Therefore, an examination for albumin and casts is usually sufficient to show whether the kidneys are in primary trouble or not. On the other hand, to determine whether liver disturbance or other toxemias are present, Foulkrod urges that it is necessary not only to determine the amount of nitrogen in the twenty-four hours' urine, but the sources of this nitrogen; how much is urea nitrogen, how much ammonia nitrogen, and how much is purin nitrogen. If, in a pregnant patient who shows disturbances that denote toxemia, the total amount of urine output is greatly decreased and the nitrogen is also decreased, the kidneys may be at fault. If the liver is much disturbed the relation of the urea nitrogen to the ammonia nitrogen is changed, the urea nitrogen being decreased and the ammonia nitrogen increased. If such urinary findings persist, viz., if there is a gradually increased amount of ammonia nitrogen and a gradually decreased amount of urea nitrogen, it shows that there is serious liver disturbance, and Foulkrod advises the induction of labor irrespective of albumin and casts. When there is pernicious vomiting in pregnancy the same changes in the nitrogen output of the urine may take place, and if an increased amount of food can not be in some manner retained, or if retained the ammonia nitrogen output is still high, the pregnancy should not be allowed to go on.

ILLUMINATING GAS POISONING

Dr. Glenn I. Jones, in the *American Journal of the Medical Sciences*, January, 1909, after discussing the chemistry and symptomatology of the condition, says that the prognosis is based on "the duration of exposure; degree of coma; condition of the pulse, respiration and temperature; condition of lungs; condition of blood; and the presence of cutaneous blebs." If the coma is prolonged forty-eight hours or more the prognosis is bad. If there is edema the prognosis is bad. If the inhalation of the illuminating gas has endured but a short time, response to treatment is rapid. Jones states that all cases which develop cutaneous blebs end fatally.

The treatment of the patient should be plenty of fresh air; the tongue should be drawn forward, and, if respiration is failing artificial respiration should be begun. Venesection should be done from one arm, and from "a pint to a pint and a half of blood should be removed," and simultaneously a quart of physiologic saline solution should be transfused into the median basilic or cephalic vein of the opposite arm. Two hours later, if there is not sufficient improvement, venesection may be done again. Saline solutions should be given subcutaneously every two hours in quantities of one pint. Or perhaps better the saline should be given by the colon by the continuous method. Jones believes that these saline solutions "diminish toxemia, lessen the tendency to edema of the lungs, increase the affinity of the red cells for oxygen, and stimulate the circulatory system."

As soon as possible after the patient has been discovered Jones advises the hypodermatic injection of 2 c.c. (30 minims) of ether, 1/100 of a grain of atropin, and 2 c.c. (30 minims) of suprarenalin solution (1 to 1000).

He does not believe nitroglycerin or other vasodilators are indicated, but that vasoconstriction is what is needed. Dry heat should be applied to the body to prevent the loss of that necessity of life.

Jones believes that while the venesection and injections of saline are being done an assistant should pass the stomach tube and wash out the stomach with a solution of potassium permanganate and then introduce into the stomach a solution containing 90 grams (3 ounces) of magnesium sulphate. If at any time the respiration or circulation fails, artificial respiration should be done again and circulatory stimulants again administered.

Jones does not believe that direct transfusion of blood is of any more benefit than the saline transfusions.

If the patient survives, the urine should be watched daily for some time that disturbances of the kidneys may be immediately noted.

Jones does not believe that inhalations of oxygen have any more value than ordinary air.

In all serious conditions of shock, coma and collapse, while everything that ought to be done should be done, there is a constant tendency to do too much, especially with drugs hypodermatically. Jones does not caution against the over-use of atropin or suprarenal preparations, but simply states that the suprarenalin should be repeated when indicated. If the suprarenal solution is injected hypodermatically the blood will acquire the vasoconstricting material slowly and continuously for a long time. Therefore it would be inadvisable to inject a suprarenal solution too frequently, especially as the dose he first advises, 2 c.c. of a 1 to 1000 suprarenal solution, is very large, in fact, large enough for serious consequences if the blood acquired it too rapidly.

He also does not state how often the ether should be administered, and it would seem that the secondary effect of ether would be that of a vasodilator, although the primary effect is quick and immediate stimulation. In other words, after the attempt to quicken the circulation or awaken a patient by the stimulation of ether hypodermatically it would seem inadvisable to repeat it frequently.

Also 1/100 of a grain of atropin hypodermatically should not be repeated frequently, certainly not for a number of hours.

It is not clear, if there is circulatory failure, why the hypodermatic use of strychnin is not advised.

As a circulatory and cerebral stimulant caffeine should be considered, and also the hypodermatic use of a saturated solution of camphor in sterilized olive oil.

Irrigation of the Bowels with Red Wine.—F. Houssay for some time has been lauding the advantages of lavage of the intestines with heated red wine (40 C.) in infantile diarrhea and in the *Archives de Médecine des Enfants*, April and November, 1908, xi, he cites some typical examples to demonstrate the soothing, cleansing and healing influence of this lavage. It is especially useful in mucomembranous enteritis, and general convulsions do not contraindicate this treatment. He practices in a wine-growing district (Loir-et-Cher) in France, and ascribes the action to the alcohol, tannin and potassium salts naturally in the wine. The wine must be fresh, with not more than 7 or 8 per cent. of alcohol, and he uses one liter for a lavage, repeated two or three times the first day, two liters on the following days, continuing until the stools return to normal. It is important to supervise carefully the regular and ample outflow of the fluid. The reservoir is raised about three feet above the level of the anus, and he uses a two-way cannula. None of the wine is to be retained, the aim being merely irrigation of the intestines, not retention of an enema.

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EXPERIMENTAL STUDIES ON IMMUNITY IN CANCER

We are all so acutely concerned with the efforts that are being made to learn something concerning the power of the animal organism to protect itself, and possibly to confer immunity against malignant growths, that there will undoubtedly be general interest in the discussions and articles by which the German investigators have recently tried to gather up the loose ends of the subject and to take inventory of our actual achievements and knowledge of the problem. A symposium on cancer problems at the last meeting of the German Pathological Society in Kiel,¹ together with the animated discussion that followed, serves to give a good insight into the views now held by German pathologists, while Anton Sticker, one of the active investigators of transplantable tumors, has recently published a terse summary of the existing situation concerning "the immunity and spontaneous healing of cancer according to the results of the modern experimental investigations."²

Sticker emphasizes the widespread existence of a natural immunity to tumors, which is shown by such facts as the following: Tumors arising spontaneously in animals can never be transplanted into animals of any other species, and only a small proportion of malignant tumors can be transplanted even into animals of the same species. Metchnikoff was unable to transplant human tumors to anthropoid apes, while Sticker has made over four hundred attempts to transplant human tumors to various domestic and laboratory animals without success. Even with the most readily transplanted tumors, one seldom obtains 100 per cent. of takes, for a larger or smaller number of animals will be found to resist successfully the implanted tumor cells. Sometimes a special strain of a given species may be immune to a tumor which readily attacks other strains—for example, mouse carcinomas have been found which could not be transplanted to mice raised in Berlin, although readily growing in Norwegian mice. As yet we have no understanding of the underlying principles of this natural immunity.

Artificial immunity against the transplantable tumors of animals has been secured by various means. If an animal recovers spontaneously from an inoculated

tumor, which frequently happens, this animal will be found immune to subsequent inoculations, and in at least some cases its blood will protect other animals if injected before or soon after they are inoculated; occasionally this passive immunization has been found able to cause retrogression of tumors that were already growing actively. Animals have also been rendered actively immune to tumors by previous injection of tumor cells directly into the veins, by which route no tumors are ever produced; while, in the case of transplantable mouse cancer, immunity has been secured by injection of mouse embryos, mouse liver, mouse testicle, benign mouse tumors, and even by injection of normal mouse blood. On the other hand, attempts to secure active immunity by injection of cells killed in various ways seem to have been generally unsuccessful.

At the meeting of the German pathologists the warmest discussion arose over the validity of Ehrlich's views concerning that form of immunity which he has designated as *athreptic*. The main facts and the history of this subject are, briefly, as follows: If a tumor is implanted into an animal in several places at one time it is common for several or all of the inoculated samples to take root and grow; but if a single tumor has been inoculated and has begun to grow vigorously a second inoculation will seldom take. If an implantation tumor is extirpated, however, the animal is now susceptible to a new implantation even if made the same day as the resection is performed, although if the growing tumor is only partially removed it is still impossible to cause new implantation tumors. In the case of mouse tumors it makes no difference whether or not the tumors used for the first and second implantation are the same, for the presence of rapidly-growing carcinoma will prevent successful inoculation with a sarcoma, and conversely; but Sticker has found that a spindle-cell sarcoma growth in a dog did not prevent successful inoculation with a round-cell sarcoma. Ehrlich's explanation of this phenomenon is as follows: The first rapidly growing tumor attracts to itself so strongly the necessary nutritive substances that the cells which are implanted later, being at first very poorly supplied with nourishment, are unable to secure enough food and either perish or multiply very slowly. Consequently this form of immunity is best seen when the first tumor is growing rapidly, and slowly-growing tumors may merely cause the second implantation to grow somewhat more slowly than a primary implantation would.

This hypothesis of athreptic or exhaustive immunity reminds one of the primitive hypothesis of bacterial immunity advanced by Pasteur, namely, that after infection the immunity to subsequent infection with the same organism is due to the fact that all nutrient material specific for this organism has been used up during the first infection. A number of investigators have obtained results in harmony with this athreptic immunity theory, among the earliest observations being

1. Verhandl. d. deutsch. pathol. Gesellsch., 1908, Zwölfte Tagung.
2. Ztschr. f. Krebsforsch., 1908, vii. 55.

those made in this country by L. Loeb and M. Herzog; but a number of the European workers have failed to secure resistance to a second implantation. These failures are ascribed by the Ehrlich school to the use of tumors which were not rapidly growing, in which the athrepsia was not strikingly exhibited. As yet, however, the results have not been conclusive or unanimous enough to permit one to decide either the soundness of the explanatory hypothesis or the universality of the phenomenon, not to mention the significance of athreptic immunity as observed in mice and dogs for our understanding of the pathology of human cancer.

EDUCATION AND THE FAMILY

"The School and the Family" is the title of a recent article by Professor Cattell,¹ in which he discusses the subject of the decrease of the birth rate in all civilized countries. He quotes the familiar statistics which seem to show that France lost about 20,000 in population last year, and suggests the possibility that the future history of the human race will be shorter than its past history, and that its extinction will be due to the gradual lowering of the birth rate as civilization advances.

Professor Cattell has been making some interesting observations for himself. A census of twenty-two apartment houses in New York City, for instance, shows that these contain 485 families and just fifty-four children—one child to every nine families. Here is the matter from another viewpoint: "In eighty-one divorce cases tried in a single month in a New York City court—divorces have trebled since 1870—the 162 married persons had among them fifty-two children." Doubtless it is intended by this to convey the idea that, while the apartment houses may represent such utterly artificial conditions as not to be worth citing, the divorce court records probably represent a pretty good average of the upper three-fourths of the population at least. He confesses that "these are extreme cases; but among the educated and well-to-do classes the number of children does not nearly suffice to continue the race. The Harvard graduate has on the average seven-tenths of a son, the Vassar graduate has one-half of a daughter."

While the cause of this lowered birth rate is ordinarily attributed to preventive measures consequent on selfishness and love of ease, the Columbia psychologist considers it largely a consequence of actual loss of reproductive power from overeducation. He states emphatically that it is due to the substitution of the school for the home as the chief educational institution. We are making people sophisticated and obliterating their natural instincts by rationalizing them. In his opinion, girls are more injured than boys, and many women are made incapable of bearing children from overeducation, while one in four can not now nurse her children. The following expression is epigrammatically startling: "It

is probably not an exaggeration to say that to the average cost of each girl's education through the high school must be added one unborn child."

It is clear that Professor Cattell does not cherish unqualifiedly the high idea of the value of our school and collegiate education that is common. He says: "In any case, the residuum of knowledge surviving the eight years of elementary school is pitifully small;" and again: "One of the most persistent errors of our school methods is the teaching of a child at a certain age, with great labor and at the production of much stupidity, what could be learned easily and with pleasure a couple of years later. It is possible to teach an infant to walk two months before the body is ready, but bow-legs are likely to be the only pronounced result." He is also severe in his denunciation of the present system which has placed the teaching of children, even up to the age of 16, so entirely in the hands of unmarried females, that probably not more than one in fifteen of our teachers is a man. In one normal school in California the graduating class contained 272 women and just one man. The difference between the American and the German system in this matter will be realized from the fact that there two-thirds of the teachers in corresponding schools are men.

Of course not all that Professor Cattell says will be acceptable, either to educators, or to those occupied with social questions generally, or with education from a less special standpoint; but what he has to say is extremely suggestive. There certainly is a tendency toward sophistication and the obliteration of instincts that is likely to prove serious for the human race if it is allowed to continue. He says very well: "Perhaps the principal danger to our civilization is the checking of instincts by rationalistic considerations." All this is of interest to us as physicians, not as a mere academic problem, but rather in serious relation to our daily work. We have more opportunity than any other class of men for influencing people in the matter of the natural instincts and their proper conservation and exercise. Have we perhaps been too much influenced by some of the old Malthusian doctrines, that if the race were not checked the limitations of the food supply would check it? Professor Cattell answers, "But Malthus was a false prophet; thanks to the application of science the means of subsistence have increased more rapidly than the population. If the density of the population in the United States were equal to that of Great Britain, all the people in the world could live here in comfort."

Professor Cattell's remedy deserves mention for its startling character. It is that "the teacher should be the family, and so far as may be the scholar should be the family." He draws a picture of a school in the country, the house a model of simple beauty, either containing, or adjacent to, the home of the teachers, and surrounded by gardens, orchards and barns. It should

1. Popular Science Monthly, January, 1909.

be so constructed, esthetically and hygienically, as to be an object lesson both for the pupils and for the families around. The work should consist of two hours a day for study and two hours more for handicraft work or other labor. The "tricks of reading, writing and reckoning" should be taught by the master and mistress and their older children, with the help of others who are able. All should be encouraged to go as far as they care to along the paths of letters and science. The schoolhouse should be a sort of village club, used for purposes of social intercourse and recreation, as well as for instruction.

"Such a school should be supported mainly by the work of those whom it serves; perhaps no taxation would be required; in any case the money needed for the master and mistress and their children to live in quiet elegance would not be much." The master and mistress would have ample time. "The wife could be spared when higher duties (childbearing?) demand it," and the man could devote himself to the completion of some pressing work, or to editing the local journal or practicing as physician, pastor, lawyer, or what not. Some industrial work should be connected with the school and apprentices would be trained who could carry expert skill to other neighborhoods." "Five thousand families," says Professor Cattell, "continually increasing in numbers, engaged in learning and in teaching, would give to this country a true democratic aristocracy."

In short, as a corrective for all the evils resulting from the modern supersession of the family by the school, Professor Cattell suggests a system of localized education, individual and industrial, in principle essentially resembling that which J. J. Walsh has essayed to demonstrate as prevailing in Europe during the thirteenth century.² Alas for its improbability! Before such a plan could materialize it would be necessary to reverse the entire mental current of twentieth century people.

THE PATHOGENESIS OF THE EYE SIGNS OF EXOPHTHALMIC GOITER

Few anatomic structures are enshrouded in more obscurity than certain unstriped muscles external to the eye. They have, however, attained recently a new importance since the discovery of their relation to the symptoms of exophthalmic goiter.

In 1858-59 Heinrich Müller described very briefly three groups of plain muscle fibers—one bridging over the infraorbital fissure, and one in each eyelid running vertically from the fornices of the conjunctiva to the superior and inferior tarsal plates respectively. Sappey's rather indefinite description of two bands of plain muscle lying one on either side of the eyeball, and termed by him "internal and external orbital muscles,"

has failed of confirmation at the hands of other competent anatomists.¹ The plain muscles of the lids, now known as the superior and inferior tarsal muscles, together with the M. infraorbitalis, constitute the so-called muscle of Müller, and it has been theoretically advanced that a spastic condition of these muscles causes the exophthalmos of exophthalmic goiter. Their obvious insufficiency, both from their size and position, to produce exophthalmos, together with the inadequacy of the many other theories advanced, led Landström² to seek the immediate cause of exophthalmos in a careful histologic study of the orbital contents. He removed intact by subperiosteal dissection the contents of several orbits, together with the lids and septum orbitale, and sectioned them serially in various planes. His preparations revealed a well-developed cylinder of plain muscle arising from the septum orbitale anteriorly and inserted just posterior to the equator of the ball. The result of his work he summarizes thus:

"The bulbus oculi enclosed within a connective tissue capsule and surrounded by a pad of fat is suspended within the orbit anteriorly by a cylinder-shaped plain muscle running from the septum orbitale to the equator of the bulbus and posteriorly by the recti muscles." The muscle is best developed mesially and least developed superiorly, corresponding to the position of the levator palpebræ superioris.

The ocular manifestations of exophthalmic goiter are so analogous to the effects of cervical sympathetic stimulation that many competent clinicians support this origin of the signs.

Bearing in mind the attachments of the plain muscle described by Landström to the septum orbitale and eyeball, the eye signs of exophthalmic goiter become readily explicable. A spastic condition of the muscle would have as its first effect a widening of the lid slit (Stelwag's sign). The free and easy movement of the lids being thus interfered with, an incoordination of the movements of ball and lids would follow as a natural consequence (von Graefe's sign).

The superior and inferior tarsal muscles running vertically in the lids doubtless play a considerable rôle in the production of the two phenomena just described. Exophthalmos is produced when the hypertonicity of the plain muscle—the opponens recti—overcomes the tonus of its antagonists—the recti muscles. Convergence of the eye increases the distance between the origin and insertion of the mesial portion of the cone of plain muscle, which is consequently well developed to meet this oft-repeated act. A spastic condition of the plain muscle would tend to overcome the tonus of its antagonist—the internal rectus—and a break in convergence would result (Moebius' sign).

1. Merkel and Kallius: Graefe-Saemisch Handbuch der Augenheilkunde.

2. Landström, John: Ueber Morbus Basedowii. Thesis, Stockholm, 1907.

2. Walsh, J. J.: The Thirteenth, the Greatest of Centuries.

Landström's histologic work confirms the important observations of MacCallum and Cornell.³ These authors removed the roof of the orbit and orbital fat in dogs and on electrically stimulating the cervical sympathetic produced great exophthalmos and observed peristaltic waves passing backward throughout the tissue surrounding the eyeball. By dissection and histologic study they were able to demonstrate the presence of plain muscle fibers forming a smooth conical mantle about the eye continuous anteriorly with the musculature of the lids and forming abundant attachments about the margin of the orbit, passing backward thence to end about the foramen through which the optic nerve enters the orbit.

INDUSTRIAL ACCIDENTS

The casualties occurring chiefly among wage-earners engaged in industrial pursuits are becoming the subject of increasing interest and concern in this country. The accident rate of the United States, as we remarked a few weeks ago,¹ is far above that of any other. It can hardly be a matter of indifference to a nation that the loss of life and the maiming in its industrial army is double or treble that of its principal economic rivals. "The ever-increasing legislation for the protection of life and health in industry and the demand for more stringent employers' liability legislation emphasize the need of a more careful consideration of the facts by selected industries than has thus far been possible." With these words the eminent statistician, Frederick L. Hoffman, prefaces an important discussion of accident frequency in the United States in a recent government publication.²

The scope of this discussion does not include minute analysis of the causes of accidents, the degree of injury or the methods of prevention. Rather is the present monograph a clearing of the ground and a laying of the foundation for future studies in this important field. There are few readers of Mr. Hoffman's carefully prepared report who will not agree with his conservative and temperately stated conclusions: "The facts presented in this article warrant the conclusion that the casualty risk in American industries is a most serious one, toward the reduction of which every effort should be made. At least a more earnest effort should be made to profit by the industrial methods of European countries. Granting that the underlying conditions are often quite different and that many of our industrial accidents are the result of ignorance, reckless indifference, or carelessness, the fact remains that an immense amount of human life is wasted and a vast amount of injury is done to health and strength with resulting physical impairment, which has a very considerable economic value to the nation as a whole."

Hoffmann cites for illustration the accident liability of employes in coal mines in the United States, the average annual rate being 3.10 per 1,000 for the period 1897-1906. If this were reduced to 1.29 per 1,000, the average rate in the United Kingdom for the same period, the annual saving in human lives would be 915. If the rate of casualties of railway employes in this country could be reduced from 2.50 per 1,000, which was the average annual rate for 1897-1906, to 0.98 per 1,000, the average for the German Empire for the same period, 1,735 valuable human lives would be saved annually. On a conservative estimate the total mortality from accidents in the United States among adult male wage-earners is between 30,000 and 35,000. At least one-third and perhaps one-half of this fatality could be prevented by intelligent and rational methods of factory inspection, legislation and control. We are told in addition that during the period in question there were approximately not much less than 2,000,000 non-fatal accidents. It is plain that these not only involve a vast amount of human suffering and sorrow, but must materially curtail the normal longevity of the victims.

Some accidents are in the general sense of the term unavoidable and must be laid to the account of those natural forces which have warred against man from the beginning. Others, both minor industrial accidents and great catastrophes, are the fruit of carelessness or neglect. The recent construction-crib disaster in Chicago by which perhaps as many as seventy lives were lost does not seem to have been one of the unavoidable class which no exercise of human prudence or skill could have sufficed to avert. On the contrary, it has not been clearly shown that all possible precautions against explosions or fire or their results were in force on the doomed crib. The impulse to "fix responsibility," although in some respects elementary, is probably another sign of awakened interest in the problem of prevention. Industrial accidents are not the necessary and inevitable accompaniment of intense economic activity; they are the mark of a hasty and wasteful method of getting results, and are in large part so clearly preventable that future historians will doubtless wonder that the great social and economic waste that they entail was allowed to continue so long unchecked.

THE EXTINCTION OF TUBERCULOSIS

A distinguished physician has prophesied the early disappearance of tuberculosis as a scourge of humanity. A great deal of oversanguine optimism and comparatively few careful deductions from facts on this subject have appeared of late in medical literature. The progress already made in checking the mortality from tuberculosis has been encouraging indeed; but whether it warrants the confident expectation that tuberculosis will soon become extinct among the human race is a question which conservative minds can not yet answer with a ready affirmative. The paper by Drs. Willson and Rosen-

3. MacCallum, W. G., and Cornell, W. B.: *The Mechanism of Exophthalmos*, Med. News, Oct. 15, 1904.

1. Jan. 9, 1909, p. 139.

2. U. S. Dept. Commerce and Labor, Bureau of Labor, Bull. 78.

berger¹ in the present issue of THE JOURNAL is perhaps a timely as well as a sobering suggestion to some enthusiasts, for we are, as they say, only at the beginning of the crusade against tuberculosis. According to some pathologists, almost every adult is a tuberculosis carrier, and the possibilities of latent tuberculosis becoming virulent and infectious under favoring conditions can not be accurately estimated. When we consider how widely disseminated the infection is throughout the animal kingdom, and how universal in human civilized communities, it becomes evident that, before we can dream of its final extinction in man, we must also exterminate it among animals, and the whole world must join in the warfare against it. The universal extermination of tuberculosis will evidently prove a gigantic task; but the limitation of its ravages by every possible means is none the less an imperative and a profitable duty. Isolation and disinfection are measures of indisputable, though limited, usefulness; but for the present reliance seems to be most safely placed on the possibility of building up the resistance of the human body and the creation of an environment unfavorable to the germs of the disease by better methods of living, more sunlight, and better ventilation. Possibly the future may give us some means of producing immunity other than that habituation to the disease and its fostering conditions which is said to have rendered the Jewish race to a certain extent immune; and if so we may yet hope to be delivered from the "great white plague."

THE SPLEEN AND THE METABOLISM OF IRON

The function of the spleen has long been a riddle puzzling alike to physiologists and pathologists. It is known that it is an organ of importance in connection with the formation of the blood and also one in which dying red corpuscles are destroyed. Surgeons have removed the spleen in repeated instances without injury to the general health of the patients, a fact which makes it seem certain that the functions of this organ can be taken over by other parts of the body when necessity arises. Recently new light seems to have been thrown on the function of the spleen by certain researches of Grossenbacher.[†] This observer compared the iron metabolism in normal dogs with that in animals of the same litter from which the spleen had been removed. In the splenectomized dogs he found the daily excretion of iron larger than in normal dogs. This larger iron output was found not only when the animal was fed on a protein diet but also in the fasting state; it is not due, therefore, to interference with the absorption of iron from the food. The largest daily excretion of iron in a normal animal amounted to 11.2 milligrams, while in splenectomized animals it was as much as 29.2 milligrams. The lowest daily output in animals that had been operated on amounted to 18 milligrams. The increase in the excretion of iron continued for at least ten weeks after the removal of the spleen, showing that the compensatory activities of other organs had not by that time been sufficient to prevent it. It seems prob-

able, therefore, that Grossenbacher is correct in his view that the spleen is an organ definitely concerned in the metabolism of iron; it is possible that its main function consists in retaining in the organism iron which otherwise would be excreted.

Medical News

CALIFORNIA

Itinerant Sanitary Inspection.—A traveling car illustrating sanitary methods of preventing disease is soon to start on a tour around the state, in charge of Surgeon W. Colby Rucker, P. H. & M.-H. Service. In this car is installed an exhibit showing how typhoid fever, tuberculosis and other diseases may be prevented.

Pasadena Will Report Infectious Diseases.—The mayor and council of Pasadena have recently passed resolutions in favor of more rigid enforcement of the ordinance compelling the report of infectious diseases, including tuberculosis, and have also made provision for the fumigation of rooms and houses made vacant by infected or tuberculous patients at the expense of the city. The medical society of Pasadena heartily supports the proposition.

Hospital Notes.—A dispensary was opened January 18, at the Telegraph Hill Neighborhood Association, under the direction of the San Francisco Association for the Study and Prevention of Tuberculosis.—The Okabe Hospital Association has been incorporated in Oakland, with a capital stock of \$10,000, to construct a hospital for the benefit of the Japanese residents of the community.—The Peninsula Hospital Company has selected a site for its new building on the Embarcadero Road, South Palo Alto.—Highland Park Sanitarium, Los Angeles, built by Mrs. V. E. Tagliaferro, was formally opened December 6.

COLORADO

Memorial Window.—A memorial window in memory of the late Dr. S. Edwin Solly has been placed in St. Stephens Church, Colorado Springs.

Society Meetings.—At the annual meeting of Denver County Medical Society, Dr. Edmund W. Stevens was elected president, and Dr. Charles B. Van Zant, vice-president.—Fremont County Medical Society, at its annual meeting, held in Florence, January 4, elected Dr. George D. Cummings, Florence, president; Dr. Augustus T. Clark, Canon City, vice-president; Dr. Goodlow, Canon City, secretary, and Dr. James W. Rambo, Florence, delegate to the state medical society.—Lake County Medical Society, at its annual meeting held in Leadville, December 31, elected Dr. Henry A. Calkins, president; Dr. Benjamin F. Griffith, vice-president and delegate to the state medical society, and Dr. E. T. Boyd, secretary and alternate delegate, all of Leadville.—Weld County Medical Society has been incorporated by Dr. Charles B. Dyde, Ella A. Mead, and Charles A. Ringle, all of Greeley.

ILLINOIS

The Tuberculosis Institute.—The Chicago Tuberculosis Institute elected the following officers at its annual meeting: Dr. Henry B. Favill, president; Drs. Frank Billings and Robert H. Babcock, vice-presidents; David B. Forgan, treasurer, and Sherman Kingsley, secretary. Traveling tuberculosis exhibits are the latest educational propaganda announcements of the institute.

Personal.—Dr. Max F. Clausius, formerly of Jefferson Park, has been appointed physician of the Siletz Agency, Siletz, Ore.—Dr. Spencer S. Fuller, Paxton, sails for Vienna via the Mediterranean, February 9.—Dr. William D. Hohman has been elected president and Dr. Francis O. Lowe, vice-president, and Dr. H. Nelson Heflin, secretary of the staff of St. Francis' Hospital, Kewanee.

Tuberculosis Deaths.—Of the 84 deaths reported from tuberculosis in Chicago last week, only 34 were reported while living, 5 were reported after death; 1 on the day of death; 2 each, one and two days before death; 1, three days before death; 3, four days before death; 1, seven days before death; 5, from one to two weeks before death; 4, from two to four weeks before death; 4, from one to two months before death; 4, from two to four months before death, and 2, from four to six months before death.

¹ Page 449.
[†] Zentralbl. f. Physiol., 1 08, xxii.

Tuberculosis Sanatorium Opened.—The new Chicago-Winfield Tuberculosis Sanatorium, the ground and buildings for which were presented by Charles A. Stonehill to the Baron Hirsch Woman's Club, the Jewish Consumptive Relief Society, and Willing Workers, will be opened February 7. The institution will be in charge of these societies but will be non-sectarian. Several cottages, each accommodating ten patients, are soon to be built. The endowment at present amounts to about \$12,000 a year, and Dr. Theodore B. Sachs, of the Chicago Tuberculosis Institute, will be chief of staff.

INDIANA

Hospital to be Closed.—The board of managers of the Eleanor Hospital for Children, Indianapolis, has decided to close the present building on account of its inadequacy and insanitary condition.

Afflicted Physicians.—Dr. Thomas Macer, Evansville, is reported to be seriously ill with septicemia.—Dr. John L. Morris, of the Columbus Sanatorium, is reported to have been adjudged insane.—Dr. William H. Wischart, Colfax, is ill with septicemia.

Society Member Suspended.—At the session of the Vigo County Medical Society, held January 12, in Terre Haute, it is reported that Dr. James E. Donnelly was suspended from membership on account of violation of an amendment to the by-laws of the society, prohibiting lodge or contract practice.

Magazines Merge.—The *Indiana Medical Journal* and the *Central States Medical Monitor* have merged, and will hereafter be published under the name of the *Indianapolis Medical Journal*. Dr. Samuel E. Earp and Alenbert W. Brayton are editors-in-chief of the new publication. The first issue will appear this month.

Medical Society News.—At the annual meeting of the Indianapolis Medical Society, held January 5, the following officers were elected: President, Dr. Theodore Potter; vice-president, Dr. Walter N. Sharp; secretary-treasurer, Dr. Roscoe H. Ritter; delegates to the state medical association, Drs. Allison Maxwell, Albert C. Kimberlin and Edmund D. Clark, and alternates, Drs. Thomas B. Eastman, William T. S. Dodds and Charles R. Sowder.—The Fort Wayne Medical Society and Blackford Law Club are arranging for occasional joint meetings for purposes of mutual instruction and profit.

Personal.—Drs. Charles E. Barnett, Fort Wayne, and Charles C. Terry and family, South Bend, have returned from abroad.—Drs. Oscar S. Deitch, Indianapolis, Jeremiah A. Swales, Acton, R. Samuel Records, Lawrence, and William B. McDonald, New Augusta, have been appointed deputy coroners of Marion county.—Dr. T. J. Toner, Gary, has been appointed local surgeon for the Chicago, Lake Shore and South Bend Railway.—Dr. George W. Anglin, Warsaw, has been appointed physician of Kosciusko county, vice Dr. Tiffin J. Shackelford.—Dr. Clarence G. Rea has been made secretary of the Muncie board of health.—Dr. William P. Richards, New Albany, has succeeded Dr. William L. Starr as coroner of Floyd county.

IOWA

Licenses Refused.—By order of the State Board of Health, issued January 22, licenses for the practice of medicine are said to have been refused Drs. J. H. Kern, Runnells, and Peter R. Rahl, Fort Dodge.

Personal.—Dr. John S. S. Chambers, Davenport, is reported to be seriously ill with appendicitis.—Dr. and Mrs. Lawrence W. Littig, Iowa City, sailed from New York for Europe January 6.—Dr. Leonard J. B. Bowman, Manchester, has been appointed superintendent of schools of Greeley.—Dr. Joseph A. Valenta, Iowa City, has been appointed a member of the legislative committee for the Iowa Health Officers' Association.—Dr. D. S. Byers, New Hampton, is reported to have been committed to the State Hospital for the Insane, Independence.

Medical Society Meetings.—Scott County Medical Society, at its annual meeting, January 17, in Davenport, elected Dr. William H. Rendleman, president; Dr. Gordon F. Harkness, vice-president; Dr. John V. Littig, secretary-treasurer, and Dr. Edward F. Strohbehn, delegate to the state medical society, all of Davenport.—At the annual meeting of Polk County Medical Society, held in Des Moines January 5, Dr. Andrew R. Amos was elected president; Dr. Robert L. Parker, vice-president; Dr. James W. Osborn, secretary, and Dr. Eli Grimes, treasurer.—At the annual meeting of the Medical and Surgical Staff of Mercy Hospital, Council Bluffs,

January 7, Dr. B. A. McDermott was elected president; Dr. John F. Sprink, vice-president, and Dr. James M. Barstow, secretary (re-elected).

KANSAS

Personal.—Dr. Edwin J. Moffitt, Manhattan, has been appointed local surgeon for the Rock Island System and district surgeon for the Union Pacific System.—Dr. John C. Brown has resigned as president of the Wichita board of health.

District Medical Association Formed.—At a meeting recently held in Great Bend, physicians of Pawnee, Edwards, Barton and Rush counties formed a district association. The temporary secretary was instructed to apply to the state medical society for affiliation under the standard plan.

Antituberculosis Association.—At a meeting held in the House of Representatives, Topeka, Dec. 3, 1908, presided over by the governor of the state, the Kansas Branch of the National Association for the Study and Prevention of Tuberculosis was organized, with the following officers: Dr. Samuel J. Crumbine, Topeka, president; Chancellor Frank Strong, Lawrence, and Dr. Harriet Comstock, Hutchinson, vice-presidents; Dr. Charles B. Van Horn, Topeka, secretary, and Dr. Lewis H. Munn, Topeka, treasurer.

Society Meetings.—Douglas County Medical Society, at its annual meeting January 12, elected Dr. E. James Blair, Lawrence, president; Dr. George McL. Liston, Baldwin, vice-president; Dr. Harry L. Chambers, Lawrence, secretary; and Dr. James Naismith, Lawrence, treasurer.—Reno County Medical Society, at its annual meeting in Hutchinson, January 8, elected Dr. William F. Schoor, Hutchinson, president; Dr. Hazen H. Miner, Partridge, vice-president; Dr. M. C. Roberts, Hutchinson, secretary; Dr. Harry H. Heylman, Hutchinson, treasurer; Dr. Frederick O. Forney, Hutchinson, censor, and Dr. Hunter J. Duvall, Hutchinson, delegate to the state society.—Wyandotte County Medical Society, at its annual meeting January 12, in Kansas City, elected Dr. Richard C. Lowman, president; Dr. William F. Fairbanks, vice-president; and Dr. Anna K. Masterson, secretary-treasurer, all of Kansas City.—At the annual meeting of Clay County Medical Society, held in Clay Center, January 20, the following officers were elected: Dr. Xenophon Olsen, Clay Center, president; Dr. Charles C. Stillman, Morganville, vice-president; Dr. Benjamin F. Morgan, Clay Center, secretary; Dr. Samuel E. Reynolds, Clay Center, treasurer and critic, and Drs. Benjamin F. Morgan, Xenophon Olsen and Daniel P. Cook, all of Clay Center, censors.—Atchison County Medical Society, at its annual meeting in Atchison January 13, elected Dr. Arthur B. Ghase, Atchison, president; Dr. Peter R. Moore, Edgingham, vice-president; Dr. E. B. Knerr, Atchison, secretary; Dr. Edw. P. Pitts, Atchison, treasurer; Dr. Judson C. Cole, Huron, censor, and Dr. Edwin T. Shelly, Atchison, delegate to state medical society.—At the fifth annual meeting and banquet of the Allen County Medical Society, held in Iola, Dec. 16, 1908, Dr. Charles T. Halm, La Harpe, was elected president; Dr. Robert O. Christian, Iola, vice-president; Dr. Frank H. Martin, Iola, treasurer; Dr. J. W. Moore, Iola, censor; Dr. Guilford C. Glynn, Iola, delegate to the state society, and Dr. Paul S. Mitchell, Iola, alternate.—At the annual meeting of Shawnee County Medical Society, held in Topeka, Dr. William E. McVey was elected president; Dr. Charles F. Menninger, vice-president; Dr. John B. Tower, secretary; Dr. William A. Wehe, treasurer, and Dr. John E. Minney, censor, all of Topeka.—Washington County Medical Association, at its annual meeting, held in Washington, Dec. 23, 1908, elected Dr. Matthaens H. Horn, Morrowville, president; Dr. George E. Tooley, Washington, vice-president, and Dr. William M. Earnest, Washington, secretary.—At the first annual meeting of Finney County Medical Society, held in Garden City, Dr. Andrew Sabine was elected president; Dr. Albert L. Brown, vice-president, and Dr. Piper, secretary-treasurer.

KENTUCKY

New County Hospital.—The Woodford County Hospital, Versailles, has been erected at a cost of \$15,000, and given to Woodford county by Mrs. Lucy Alexander in memory of her husband.

Society Meeting.—At the annual meeting of the Kentucky Midland Medical Society, held in Lexington, January 14, the following officers were elected: Dr. Benjamin F. Van Meter, Lexington, president; Dr. Frank M. Beard, Shelbyville, vice-president, and Dr. George P. Sprague, Lexington, secretary-treasurer (re-elected).

Personal.—Dr. Joshua A. Sweeny, Louisville, who recently went to New York to undergo an operation for septicemia,

has entirely recovered.—Dr. Samuel N. Scott, Somerset, is said to have been adjudged insane.—Dr. P. Henry Nevitt, Stephensonport, is recovering from a serious attack of typhoid fever.—Dr. James C. Carriek has been re-elected president of the board of health, and Dr. Nathan R. Simmons, health officer of Lexington.—Dr. Samuel E. Woody, Louisville, has been elected president of the Baptist Sanitarium.—Dr. John K. Wood, Bowling Green, has been appointed second assistant physician at the Central Kentucky Asylum for the Insane, Lakeland, and Dr. R. Wickliffe Wood, Dansville, second assistant physician at the Eastern Kentucky Asylum for the Insane, Lexington.—Dr. E. E. Hume, mayor of Frankfort, has retired from active practice.

Jefferson County Society Meetings.—At the annual meeting of Jefferson County Medical Society, held in Louisville, Dec. 28, 1909, the following officers were elected: Dr. Charles W. Hibbitt, Louisville, president; Drs. John W. Blanton, Meadowlawn, and Thomas K. Van Zandt, Louisville, vice-presidents; Dr. J. Rowen Morrison, Louisville, treasurer, and Dr. Benjamin F. Zimmerman, chairman of the executive committee.—At the January 27 meeting of the society the chairman of the board of trustees of the Jefferson County Medical Library made a report in which he recommended that the society take over the management of the library and place it in the hands of a board of four members. The library has more than 3,000 bound volumes and 56 medical journals are on file. The society voted to accept the recommendation, which carries with it the payment of the debt of the library board incurred in the move into its new quarters. It was also voted to employ a librarian-stenographer to care for the library and report meetings of the society and its various sections. A proposition from the secretary-editor of the *Kentucky Medical Journal*, offering to publish a monthly magazine of 48 pages devoted exclusively to the interests of the society, and of which the editor-in-chief and his collaborators are to be appointed by the society, was accepted. The society adopted a uniform constitution for all sections, which is to be referred to the sections and approved by them, and then referred back to the society for final ratification. This has a provision that any member of the society shall be eligible to appointment on the various sections, but must be elected by a majority vote, although all members are welcome to attend any of the meetings. T

MARYLAND

New Hospital.—The directors of Washington County Hospital Association have decided to erect a \$60,000 hospital on property recently purchased in the suburbs of Hagerstown for \$37,000.—The City of Baltimore is about to erect a new hospital building at Bayview Asylum, at an expense of \$150,000, to accommodate 100 patients.

Annual Meeting of Eudowood Hospital.—The annual meeting of the Eudowood Sanatorium Tuberculosis Hospital of Maryland was held January 25. The president, Dr. Henry B. Jacobs, reported that 178 cases had been treated during the year. In addition to enlargements and improvements, two new departments have been added, the Marie Bloede Memorial Hospital and the Farm Colony. The cost of maintenance at this sanatorium is said to be lower than that of any similar institution in the country as all milk and vegetables are raised on the farm and as all patients whose condition permits are required to work. A training school for special tuberculosis nurses has been established. Discharged patients are visited at their homes, and everything is done to assist them in maintaining their health.

MASSACHUSETTS

Personal.—Dr. Bradford H. Pierce has been appointed medical inspector by the Cambridge board of health, vice Dr. Albert P. Norris, resigned.—Dr. Josiah P. Bixby has been made a member of the board of health and Dr. Charles T. O'Brien city physician of Woburn.

Hospital Notes.—The Lamont G. Burnham Memorial Building on the grounds of the Boston City Hospital, erected at a cost of \$150,000, by the bequest of the man whose name it bears, has been formally opened. The new building will be used as an x-ray ward.—The trustees of Newton Hospital announce that efforts of the charity workers of Newton for the removal of the debt of \$19,000 during the last year have resulted in a subscription fund of \$33,700.

Lectures on Tumors.—A course of lectures on tumors is to be given under the auspices of the Cancer Commission of Harvard University in the Amphitheater of Building D, Harvard Medical School, Longwood Avenue, Boston, on Thursday after-

noons, at 5 p. m., beginning February 4. The lecturers and topics are as follows:

February 4, Dr. Ernest E. Tytzer, Boston, "The Bearing of the Experimental Investigation of Tumors on the Tumor Problem in General."

February 11, Dr. William T. Howard, Cleveland, Ohio, "The Regulatory Processes of Tumor Cells."

February 18, Dr. F. B. Mallory, Boston, "The Classification of Tumors."

February 25, Dr. Harvey W. Cushing, Baltimore, "The Physiologic Pathology of Intracranial Tumors."

March 4, Dr. S. B. Wolbach, Albany, "The Etiology of Tumors, Considered from Our Knowledge of Congenital Tumors and Tumors Following Repeated Injury."

March 11, Dr. F. P. Gay, Boston, "The Problem of Cancer Considered from the Standpoint of Immunity."

District Society Meeting.—At the semi-annual meeting of the Essex North District Medical Society, held in Haverhill, January 6, the following committee was appointed to assist the American Medical Association in its plan to aid those organizations asking a National Department of Public Health: Drs. Charles E. Durant and John F. Croston, Haverhill; Dr. Roy V. Baketel, Methuen, and Drs. W. H. Coon and J. Forrest Burnham, Lawrence. A committee consisting of Drs. Francis W. Anthony and John J. Prevaux, Haverhill; Dr. Warrin W. Pillsbury, Newburyport, and Drs. Timothy J. Daly and J. Forrest Burnham was appointed to assist the Auxiliary Committee on State and National Legislation of the Massachusetts Medical Society for the year. A list of advertising doctors and medical companies in the district was presented to the society, and it was voted to send the list to the American Medical Association. Dr. Silas D. Presbrey, Taunton, president of the state society, addressed the meeting on the value to the community of continual watchfulness against improper medical legislation.

Requirements for Certified Milk.—The Medical Milk Commission of Worcester has issued a pamphlet detailing the requirements for the production of certified and inspected milk. Certified milk is to be free from pus and pathogenic organisms, is to contain not more than 10,000 bacteria to the cubic centimeter; to be of neutral or slightly acid reaction; to contain not less than 3, nor more than 4 per cent. of proteids; not less than 4 nor more than 5½ per cent. of sugar; not less than 3½ nor more than 4½ per cent. of fats; to be free from preservatives, color matter, and other contamination; not to be subjected to the action of heat; to be cooled to a temperature of 45 degrees within one hour of the time of milking, and to be kept at this temperature up to the time of delivery; not to be frozen; to be delivered in sealed glass bottles, and the milker to be personally clean and neither to have been or to be in contact with any contagious disease while employed in handling the milk. Inspected milk is to be free from pus and pathogenic organisms; must contain not more than 50,000 bacteria to the cubic centimeter; is to be neutral or slightly acid in reaction; to contain not less than 13 per cent. total solids nor less than 3½ per cent. of fat; to be free from preservatives, coloring matter and other contaminations; not to have been subjected to the action of heat; to be cooled to a temperature of 50 degrees within one hour of the time of milking, and to be kept at this temperature up to the time of delivery; not to have been frozen; to be delivered in glass bottles satisfactorily sealed, and the milker to be personally clean, and neither to have nor to have come in contact with any contagious disease while employed in handling the milk.

Proposed Legislation.—A bill has been presented to the legislature providing that all persons holding themselves out by sign, business card, or otherwise as practitioners in the commonwealth of christian science, mental healing, hypnotism, and doctors of divinity, or ministers of the gospel, conducting clinics for psychologic or divine healing, and all kinds of healers or preventives of human diseases shall register their names with the State Board of Health and state their place of business and the manner in which they heal disease, and the nature of the cases that they intend to treat and practice on in their profession, on or before April 1 of each year, and shall be subject to the management and control of the said board. All persons who register in accordance with the provisions of this act shall receive a license to practice their profession of healing disease or of preventing the same, and to sign death certificates on the payment of a fee of \$1 to the State Board of Health, which shall have the authority to revoke any license granted thereunder in its discretion. Any person, who not being licensed, practices or holds himself out to practice, and accepts a fee of any sort for his or her services shall, on a first conviction, be fined \$25, and on a subsequent conviction be punished by fine or imprisonment, or both, at the discretion

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of the court.—The first milk bill of the session provides that, "milk that is pure and unadulterated, and from which no part of the cream has been removed shall be considered to be of good standard quality within the meaning of the statute, and milk which is adulterated or to which water or any foreign substance has been added or from which the cream or any part thereof has been removed, and milk produced from cows which have been fed on the refuse from distilleries, and milk from sick or diseased cows, shall be regarded as milk not of good standard quality."

MISSOURI

State Board Meeting.—The Missouri State Board of Health, at its annual meeting, held in Jefferson City, January 6, organized and elected the following officers: President, Dr. Robert H. J. Goodier. Hannibal; vice-president, Dr. John T. Thatcher, Oregon, and secretary, Dr. James A. B. Adecock, Warrensburg.

Eddyites May Practice Without Practicing.—In a case brought in Warrensburg to test the medical practice act, in which two prominent Eddyites of Kansas City were charged with violation of the law making it an offense to practice medicine or to treat the sick for pay without a license, Judge Thurmond held that the Missouri statutes do not apply to that form of practice performed by "Christian Scientists," and that the laws of the state do not prohibit or restrict in any way their practice.

St. Louis

New Site for Hospital.—The Skin and Cancer Hospital has purchased a site on Washington and Theresa avenues for the new building, made possible through the donation of \$100,000 by Mrs. Barnard. The plans are well under way.

Society Meetings.—On January 25, the St. Louis chapter of the Society for Moral and Social Prophylaxis was organized. Rev. George R. Dodson presided, and a constitution based on that of the New York society was adopted. Nomination of permanent officers will be made at the next meeting.—On January 15, at a joint meeting of physicians and lawyers, the preliminary organization of the St. Louis Medical-legal society was effected. The purpose of the society, as outlined, is to make reforms in the existing coroner system, to develop expert medical testimony; to establish an expert commission on insanity; and to excite interest in laws affecting public health and in matters of mutual interest to the two professions. Former circuit attorney, A. N. Sager, was elected temporary president, and Dr. Henry J. Scherek temporary secretary.—At the annual meeting of the ophthalmic section of the St. Louis Medical Society, January 13, the following officers were elected: Chairman, Dr. Adolph Alt; vice-chairman, Dr. Meyer Wiener; secretary, Dr. John Green, Jr.; treasurer, Dr. William H. Luedde; and editor, Dr. Lewellyn P. Williamson.—The section of internal medicine of the St. Louis Medical Society has elected Dr. Louis H. Hempelmann, chairman; Dr. Louis M. Warfield, vice-chairman; and Dr. Albert E. Taussig, secretary-treasurer.—The obstetrical section of the St. Louis Medical Society has elected Dr. Walter B. Dorsett, chairman; Dr. Oscar H. Elbrecht, vice-chairman; Dr. E. Lee Dorsett, secretary; Dr. Hugo Ehrenfest, treasurer; and Dr. Frederick J. Taussig, editor.

NEW JERSEY

Drastic Action of Hospital Directors.—The medical profession of Newark is excited over the recent action of the directors of the German Hospital in dropping three members of its staff, Drs. William F. Seidler, Marcus Seidmann and Frederick Hexamer. These gentlemen, one of whom was secretary of the medical organization of the hospital, were not formally discharged from the service, but were discarded when the directors dissolved the medical board and established a new one. It has been admitted that the recent action was taken not on professional but on commercial grounds, as these gentlemen are said not to have aided in producing revenue for the hospital by bringing private patients to the institution for treatment.

NEW YORK

Gift to Hospital.—Announcement has been made that George Eastman, Rochester, has donated \$400,000 to the Rochester City Hospital for the purpose of rebuilding the hospital and making extensive additions.

Unregistered Physician Fined.—Agnes V. Kelley, Jamestown, is said to have pleaded guilty, January 1, to the charge of practicing medicine without a license and to have been fined \$100. The charge was preferred by Dr. Era M. Schofield,

Jamestown, censor of the Chautauqua County Medical Society.

Albany Hospital Needs Aid.—The annual report of the Albany Hospital has just been issued, and shows that during the past year 3,014 patients were treated; of these, 720 occupied private rooms and 1,010 were in semi-private rooms. The city contributed something toward the support of those in public wards. The sum of \$9,249 was received from contributors, which, although more than has ever before been given, is entirely inadequate to meet the expenses. The hospital has a floating debt of \$45,000, made up in part of an unpaid balance due to the cost of erection and part of the accumulated yearly deficits.

Inspection of Factories.—The report of Dr. C. T. Graham Rogers, who was delegated to make an inspection of factories, states that the State Labor Department is seriously handicapped because the state labor law lacks provisions to regulate sanitation in factories. He urges a new code to cover deficiencies. He wants the minimum cubic air space for each person to be increased, summary powers to be given to the State Labor Department to furnish pure drinking water and sanitary plumbing, and to prevent factories being used as lodging places. He desires that the storing of foodstuffs in tenement factories be prohibited.

Insane Badly Treated.—The Commission in Lunacy, as a result of its investigation of the procedure adopted by county officials in different parts of the state in the temporary care and detention of insane persons pending their commitment to state hospitals, has revealed some startling abuses. Outside the Metropolitan District, 466 patients, of whom 87 were women, were confined in jails, lockups and police stations during the past twelve months. This was in direct violation of the spirit of the insanity law, which provides that "pending the completion of procedures necessary for commitment the patient must be cared for in a safe and comfortable place." Of the 1,615 new cases which developed in New York City, of which 653 were women, all were able to obtain hospital care only through police channels. It was agreed that the care and supervision of the indigent insane should properly devolve on the health officers of the state, pending the completion of procedures for commitment. In New York City this duty should devolve on the State Charities Aid Association.

Stony Wold Sanitarium.—The annual meeting of the board of directors of this institution was held January 26, when it was announced that the mortgage of \$80,000 had been paid off and that the deficit of \$25,386 left over from last year had been reduced by \$3,000. The institution is in better financial condition than it has ever been before. Dr. D. Bryson Delavan reported that the percentage of apparent cures among the discharged cases was much greater than it was in 1907. Of the 224 patients treated during the year, 89 are still in the sanitarium, 135 having been discharged. Chancellor Henry H. MacCracken of New York University made an address, in which he said that New York State was behind some other states in that it practically left the care of its sick to private charities. In some states help was given to medical students, but New York did not educate any physicians. Some rural districts were unable properly to support a physician, and in some western states the state helped these small rural districts. The state should take up this matter as it did the matter of making suitable roads.

New York City

Addition to Dispensary.—The West Side German Dispensary has filed plans for the erection of a postgraduate department which will contain separate wards for male and female patients, a sun parlor and an anesthetic room.

Medical Certificates Not Accepted.—It has recently been decided at the Court of General Sessions that too many doctors have the habit of certifying to the inability of witnesses and defendants to appear in court, and that hereafter the doctor signing the certificate shall be required to come to court and to tell under oath the circumstances under which he made out the paper.

New Maternity Hospital.—The new Jewish Maternity Hospital on East Broadway was dedicated January 24. The institution is to be non-sectarian. An unusual feature of the hospital is a day nursery where children may be cared for during the absence of their mother at work; this will make it possible for many mothers to get the benefit of hospital care who otherwise could not leave their homes. An obstetrical training school for nurses will be maintained in connection with the hospital.

Norwegian Hospital Alumni Meet.—The Norwegian Hospital Alumni Association, Brooklyn, celebrated its one-hundredth meeting by a dinner at the residence of Dr. Sewell Matheson, January 13. The re-elected president, Dr. Robert E. Coughlin, presided as toastmaster. At the close of the dinner a silent toast was drunk to the Norwegian Hospital and its staff. The officers of the association are: President, Dr. Robert E. Coughlin; vice-president, Dr. John H. Ohly; and secretary-treasurer, Dr. Louis Stork, Jr., all of Brooklyn.

Memorial to Dr. McCosh.—A meeting was held December 17 to consider what steps should be taken to commemorate the services rendered the community by the late Dr. Andrew J. McCosh. It seemed to be the consensus of opinion that in view of Dr. McCosh's close identification with, and lengthened services at, the Presbyterian Hospital, the most fitting tribute to his memory would be a surgical pavilion, ward or operating room bearing his name in that institution. The precise character of the memorial could not be determined until it was ascertained how much money would be subscribed for the purpose. A committee was appointed to receive contributions and to formulate a plan for an appropriate memorial.

OHIO

Physicians Win Suit.—In the Common Pleas Court of Toledo the malpractice suit brought by Christian Kruse against Drs. James T. Lawless, Sr., and Jr., was decided in favor of the defendants. The plaintiff asked for \$10,000 damages on account of alleged malpractice in reducing a fracture of the arm which was crushed in an ice-boat accident.

County Tuberculosis Hospital.—Franklin, Lucas, Cuyahoga, Hamilton, Mahoning and Allen counties have already complied with the requirements of the law establishing a tuberculosis hospital or contracting for patients in such an institution and prohibiting the keeping of tuberculosis patients in county infirmaries, which became effective January 1.

Hospital Notes.—The new building of the Providence Hospital, Sandusky, was dedicated January 20. The building contains eight sleeping rooms, parlor, nurses' study hall and work room.—The Woodhill General Hospital, Cleveland, established in the Newburg district, was opened to receive patients January 2. The institution will accommodate 25 patients.

Prohibit Prescriptions for Liquor.—At a meeting of Preble County Medical Society, it was decided by resolution to prohibit the issuing of prescriptions for liquor by physicians unless in cases of patients confined to the bed.—The members of the Guernsey County Medical Society are said to have adopted resolutions to issue no prescriptions whatever for alcoholic drinks, or medicine containing alcohol.

PENNSYLVANIA

Pittsburg Vital Statistics.—During 1908, there were reported 9,031 deaths in Pittsburg, equivalent to an annual death rate of 15.98 per 1,000. There was a decrease of 907 deaths as compared with the previous year. The mortality rate from tuberculosis was one per 1,000. The deaths from typhoid fever during the year were 254, or 286 fewer than in 1907. The deaths from measles increased from 62 to 252. Diphtheria, whooping cough, and diarrheal diseases of children caused relatively few deaths during the year. There were about 15,000 births during the same period.

Bill to Protect Babies.—Bills providing for the regulation of the sale of milk and for licensing persons boarding and keeping infants, and also for midwives, will be introduced at the meeting of the legislature. The milk bill regulates the sale of milk and its fluid derivatives and provides for licensing persons engaged in the business. The license fee is fixed at \$5. For evasions of the law, a penalty of \$50 fine or sixty days' imprisonment or both is to be imposed. A fine of \$100 is the penalty fixed for violations in a bill providing for the regulation and licensing of persons receiving, boarding and keeping infants under 3 years of age. This measure, if passed, will go into effect September next.

Election.—At the annual meeting of the Medical Society of Franklin County, held January 19, the following officers were elected: President, Dr. Percy D. Hoover, Waynesboro; vice-presidents, Drs. Harry M. Miley, Chambersburg, and Ambrose W. Thrush, Green Village; secretary, Dr. John J. Coffman, Scotland (re-elected); assistant secretary, Dr. Henry C. Devilbiss, Chambersburg; treasurer, Dr. Johnston McLanahan, Chambersburg, and censor, Dr. J. Burns Amberson, Waynesboro. The society endorsed the "one board" bill which has just been introduced into the state legislature. A report was made urging the board of directors of the Chambersburg

Hospital to allow legally qualified physicians to attend their private patients in the hospital.

New Medical Bill.—A bill intended to supersede almost entirely the present medical laws of this state will be introduced in the legislature at this session. The bill proposes a single board of medical examiners in place of the present three boards, representing the two elder schools in medicine and eclectic medicine. The single board is to consist of the superintendent of public instruction and eight other members to be appointed by the governor, two for one year, three for two years and three for three years from March 1, 1909. The qualifications for a license to practice medicine are very closely and rigidly defined, and the law is much more severe in its provisions with reference to malpractice and moral obliquity of any kind in practice than is the present act.

Vital Statistics.—During November there were reported 8,513 deaths in the state. Chief among death causes were pneumonia, 843; violence (including suicide), 819; tuberculosis, 797; diseases of early infancy, 444; nephritis, 404; diarrhea and enteritis, 349; cancer, 341; diphtheria, 243; typhoid fever, 185; scarlet fever, 131; meningitis, 56; whooping cough, 55; influenza, 50; measles, 34; and malarial fever, 5. The total number of cases of communicable diseases reported during December was 9,819, distributed as follows: Measles, 1,640; diphtheria, 1,588; scarlet fever, 1,537; chickenpox, 1,266; typhoid fever, 1,122; tuberculosis, 1,028; pneumonia, 789; whooping cough, 492; mumps, 139; erysipelas, 119; german measles, 43; cerebrospinal meningitis, 12; smallpox, 11; tetanus, 7; puerperal fever, 6; malarial fever, 5; trachoma, 4; and anthrax, 1.

Ordinance Regarding Tuberculosis.—The Tuberculosis League of Pittsburg has drafted and carried through the council of the city an ordinance, the object of which is to centralize the work in the Department of Public Health. The ordinance establishes the Division of Tuberculosis Inspection and Relief in the Bureau of Health under the Department of Public Safety, under the superintendency and direction of a commission consisting of the Superintendent of the Bureau of Health and four citizens appointed by the Director of the Department of Public Safety for terms of seven years, and to serve without remuneration. This commission is to be designated as the "Tuberculosis Commission of Pittsburg." The division of tuberculosis inspection is to prepare and keep accurate records of all cases of tuberculosis existing in the municipality, and inspect the dwellings, tenements, factories, shops and other places where cases of tuberculosis exist, ascertain the cause of infection, provide for the disinfection and cleansing of same and report to the proper department the cases needing charitable relief; to establish dispensary stations; to prepare and disseminate information as to the cause, treatment and relief of tuberculosis, and to adopt such other measures as will tend to eradicate the infection. The division is to have attached to it one clerk and five trained nurses, all to be appointed by the Director of the Department of Public Safety, who is also to provide suitable accommodation in connection with the Bureau of Health for the use of the division.

Philadelphia

Hospital Buys Lot.—The Medico-Chirurgical Hospital has purchased for \$20,000 a lot 19 x 130 feet, on Eighteenth Street, adjoining the new hospital building.

Malpractitioner Convicted.—Mrs. Anne Shoenborn, who is said to have been thrice arrested and twice found guilty of criminal malpractice, and who recently was refused a new trial, was sentenced to two years' imprisonment, January 15, for attempted malpractice.

Dinner to Dr. Deaver.—A number of physicians who have been operated on by Dr. John B. Deaver are to give a dinner in his honor at the University Club February 14. More than 150 physicians are included in this category. A loving cup will be presented to Dr. Deaver on this occasion.

Filtered Water for the Entire City.—An inspection of the work of completion of the 120 preliminary filters of the Torresdale filter plant was made in January 29 by Director Stearns of the Department of Public Works, and Chief Dunlap of the Water Bureau, and it is declared that the entire city will be supplied with filtered water by March 1.

Liquor and Drug Habit Disqualify.—The Philadelphia County Medical Society has drafted a bill which includes a provision barring from practice physicians addicted to the use of liquor or drugs. In cases where this fact can be proved the license is revoked. Should a cure be effected, the practitioner may be reinstated, but, for a second offense, the license is to be revoked unalterably.

Spent to Aid Children.—More than \$100,000 was spent during 1908 by the Children's Aid Society in aiding homeless and neglected children. The greatest single item was for board of children in the country, which amounted to \$53,516, the sum expended for clothing amounted to \$13,744. During the year, 394 children were received from various sources, and on December 31 the society had in its care 1,410 children. During the year, working homes were provided for 609 destitute mothers, each with one or two children.

To Separate Almshouse, Insane Asylum and Indigent.—A bill is now being framed by Dr. Joseph S. Neff, Director of Public Health and Charities, for presentation to the legislature providing for the separation of the Philadelphia General Hospital for the Insane and the Philadelphia General Hospital, now embraced in one group of buildings in West Philadelphia. The bill is so framed that the city will care for the indigents of the districts, and in return will have the use of the various plots of land now occupied by the district houses. It is proposed to locate the new City Almshouse or Home for Indigent, as the institution will be styled, at the Lower Dublin Almshouse, which comprises 150 acres, and the New City Hospital for the Insane at Byberry, where the city has 840 acres. Those infected with tuberculosis are to be cared for at Roxborough.

Officers Elected.—At the annual meeting of the Northern Medical Association of Philadelphia, the following officers were elected: President, Dr. Ralph E. Shrom; vice-president, Dr. William R. Bready, Jr.; secretary, Dr. Paul Bremer; treasurer, Dr. John W. Millick; corresponding secretary, Dr. Thomas Shriner; censor, Dr. Frederick Strauss; and librarian, Dr. Robert J. Hess. The annual election of the Philadelphia Pediatric Society resulted as follows: President, Dr. John C. Gittings; vice-presidents, Drs. Herbert B. Carpenter, Charles A. Fife and B. Franklin Royer; treasurer, Dr. Howard C. Carpenter; and secretary and recorder, Dr. Maurice Ostheimer. At the annual meeting of the South Branch of the Philadelphia County Medical Society, the following officers were elected: Chairman, Dr. Robert O. Kevin, and clerk, Dr. J. S. Kitchen. At the meeting for organization of the Philadelphia Psychiatric Society, January 12, the following officers were elected: President, Dr. Charles W. Burr; vice-president, Dr. Albert R. Moulton; secretary and treasurer, Dr. Wilfred W. Hawke, and directors, Drs. John K. Mitchell and Francis N. Dereum. At the annual meeting of the Medical Society of Philadelphia, held January 26, the following officers were elected: President, Mr. Joseph Savidge; vice-presidents, Drs. Samuel P. Gerhaid and Lambert Ott; secretary, Dr. William T. Hamilton; treasurer, Dr. George M. D. Peltz, and censors, James Wolfe and Drs. Francis J. Kelly and William D. Robinson. At the annual meeting of the Philadelphia County Medical Society, January 20, the following officers were elected: President, Dr. Frederick P. Henry; vice-presidents, Drs. William E. Parke, Charles J. Hoban, F. Mortimer Cleveland, John F. Roderer, W. H. Morrison, Frank W. Thomas and Ernest W. Kelsey; secretary, Dr. William S. Way; assistant secretary, Dr. Alexander R. Craig; treasurer, Dr. Collier L. Bower; censors, Drs. Jay F. Schamberger and Louis H. Adler, Jr., and recommended to the state society as district censor, Dr. Milton B. Hartzell.

TEXAS

District Society Meeting.—The annual meeting of the Central Texas District Medical Association was held in Waco January 12 and 13. The retiring president, Dr. William A. Wood, Hubbard, chose as a subject for his address the history of the Central Texas District Medical Association, in which he paid a glowing tribute of respect to the living and dead ex-presidents. During the latter part of the first day's session the association met with the board of councilors of the State Medical Association and a general discussion was held on the subject of division of fees. It appeared to be the consensus of opinion that division of fees should not be encouraged or countenanced by the profession of the state. Dr. Milton P. McElhamon, Belton, was elected president and Dr. William M. Yater, Cleburne, secretary. Marlin was selected as the place, and July 12 and 13 as the time of the next meeting.

VERMONT

Gift to Hospital.—Mr. E. W. Bailey, Chicago, and Mr. L. D. Taft, Montpelier, have presented \$10,000 to Henton Hospital, Montpelier.

State Board Election.—At the annual meeting of the State Board of Health, held in Burlington, December 3, Dr. Charles S. Cavelly, Rutland, was elected president, and Dr. Henry D. Holton, Brattleboro, secretary.

VIRGINIA

Society Meetings.—The Alexandria Medical Society, at its annual meeting elected Dr. Geo. T. Kleipstein president; Dr. Martin D. Delaney, vice-president; Dr. Robert L. Wilkins, secretary, and Dr. Lewellyn Powell, treasurer. At the annual meeting of the First District Medical Society, held in Newport, January 5, Dr. Walter A. Plecker, Hampton, was elected chairman; Dr. George J. Williams, Newport News, secretary, and Dr. Clarence P. Jones, Newport News, counselor. Richmond Chapter of Shaw University Alumni was organized January 6, with the following officers: President, Dr. Edward R. Jefferson; vice-presidents, Walter Brown, D.D.S., and Silas H. Shackelford, Ph.D.; secretary, Dr. William H. Hughes; corresponding secretary, Dr. Q. William Moon; chaplain, Dr. J. A. Dawson, and historian, Dr. J. R. Griffin.

WASHINGTON

New Hospital.—Sacred Heart Hospital, Spokane, has recently been completed at a cost of \$500,000. The institution is a six-story building and on the roof is a sun parlor for convalescent patients.

Quarantine Rules Still in Force.—Dr. Elmer E. Heg, Seattle, secretary of the State Board of Health, has sent official notice to all local steamship owners and agents that the quarantine regulations are still in force as regards rat guards and fumigation.

Health Officers Organize.—The health officers of Washington met in Seattle recently, organized the Washington State Association of Local Health Officers, and elected the following officers: President, Dr. James E. Creighton, Seattle; vice-presidents, Drs. William W. Ballaine, Bellingham, Matthew B. Grieve, Spokane, and Albert P. Duryee, Everett; secretary, Dr. A. A. Brayer, Seattle, and treasurer, Dr. James F. Leslie, Watertown.

Personal.—Dr. Spiro Sargentich, Tacoma, returned from a visit to Montenegro January 15, and has resumed his work as health commissioner. Dr. William C. Hastings, Seattle, fell on an icy pavement January 16, breaking his right hip. Dr. Caleb E. Martin, Bellingham, health officer of Whatcom county, has resigned. Dr. W. C. Wood has been appointed city physician of Seattle, vice Dr. R. A. Van Voast, resigned. Dr. Nevin D. Pontius and Frederick Bentley, Seattle, have started on a trip to Honolulu, the Orient, and Europe. Dr. X. P. DeDonato has been appointed health officer of Georgetown, vice Dr. Scott P. Wooden.

Medical Society Meetings.—At the annual meeting of King County Medical Society the following officers were elected: President, Dr. Grant Calhoun; vice-president, Dr. Robert M. Stith; secretary, Dr. Louis H. Redon, and treasurer, Dr. Herbert C. Ostrom, all of Seattle. At the annual meeting of Spokane County Medical Society, held January 7, the following officers were elected: Dr. Harold H. McCarthy, president; Drs. Arthur T. R. Cunningham, and Peter D. McConack, vice-presidents; Dr. Carroll L. Smith, secretary; Dr. Samuel E. Lamber, corresponding secretary; Dr. Charles McC. Doland, treasurer, and Drs. Wallace W. Potter, Wilson Johnston, and George K. McDowell, censors, all of Spokane. Skagit County Medical Society met at Mount Vernon recently and elected the following officers: Dr. George B. Smith, Anacortes, president; Dr. Adolph J. Osterman, Mount Vernon, vice-president, and Dr. Arnold L. Brandt, Mount Vernon, secretary-treasurer. At the annual meeting of Lincoln County Medical Society, held in Davenport, Dr. Lee Ganson, Odessa, was elected president; Dr. Rufus P. Moore, Davenport, vice-president, and Dr. L. F. Waggoner, secretary-treasurer.

GENERAL NEWS AND COMMENT

Repetition of Alleged Original Articles.—The much too frequent practice of securing the publication of the same article in various journals, in the department allotted to original contributions, is unjustifiable on many grounds. It is unfair to the journal in which the article is first published, for it is a well-known rule of journalism that articles are accepted as original only on the understanding that they are not published elsewhere, save as a reproduction, with credit to the journal first publishing them. It is unfair also to those of the other journals that undertake to publish the article in ignorance of the fact that it has already been published. It is unfair to the readers of the various journals, who certainly do not subscribe for several periodicals in the expectation of finding the same so-called "original" matter in all of them. It is particularly trying to librarians, editors, and literature

researchers, when compiling or searching indexes, to find themselves confronted again and again with the same article. THE JOURNAL has many times commented on this matter. A recent instance is an article which appeared in *Surgery, Gynecology and Obstetrics* and the *Chicago Medical Recorder* for October, as well as in the *Virginia Medical Semi-Monthly* for October 23. It has since made various reappearances—which THE JOURNAL ceased to chronicle in its Current Medical Literature Department after the ninth publication—and is apparently still going strong. Its latest appearance is in the *Medical Fortnightly*, Jan. 25, 1909, where we find it announced on the cover under the head of original articles—"Perforating Wounds of the Uterus Inflicted During the Course of Intra-Uterine Instrumentation." This is immediately followed on the table of contents by the title of an editorial on "How Long, O Lord, How Long?" How very appropriate!

CANADA

Clean Milk for British Columbia.—Dr. Charles J. Fagan, Victoria, medical health officer of British Columbia, has prepared an elaborate report on the milk industry of that province. He was sent last summer to investigate the conditions as they existed in the large cities of eastern Canada as well as in some cities of the United States.

Vancouver's Mortality Rate in 1908.—According to the mortality statistics prepared by Dr. Underhill, medical health officer for Vancouver, the death rate in that city for 1908 was 9.816 per 1,000, and 13.059 per 1,000 in 1907. Of contagious diseases there were 590 in 1908 as against 679 in 1907. The report made as to tuberculosis notices 22 new cases and 72 deaths during 1908. In the previous year there were 28 new cases and 69 deaths.

Sanatorium for London.—Drs. Bruce Smith, Charles Hodgetts and Dr. John A. Amyot, Toronto, of the provincial staff, recently conferred with the staff of the London Hospital relative to the establishment of a sanatorium for consumptives in that city. It was intimated that the government was prepared to give a substantial grant if the hospital would employ part of the Contagious Diseases Hospital for that purpose. Twenty thousand dollars will be required and of this amount \$4,300 has been secured.

Inducement to Study Tuberculosis.—Mr. W. J. Gage, Toronto, the promoter of the system of sanatoria under the Canadian National Sanitarium Association, and its treasurer announces a scholarship to the value of \$100 for the students of the Faculty of Medicine of the University of Toronto, to encourage a closer study of tuberculosis. He also announces that he will donate a gold and silver medal to fourth and fifth year students and graduates of not more than one year's standing who will pass the best prescribed examinations in this important subject.

Personal.—Dr. William A. Young, managing editor of the *Canadian Journal of Medicine and Surgery*, Toronto, is convalescing from a prolonged and severe illness and will shortly proceed south for his health.—Dr. J. C. Davie, Victoria, B. C., is ill with cerebral hemorrhage.—Dr. Julius E. Lehmann, Winnipeg, city bacteriologist, has returned from Europe.—Dr. James H. Richardson, surgeon to the Toronto jail, has resigned after a service of over fifty years.—Dr. George R. McDonagh, Toronto, has gone on a visit to Rio de Janeiro.—Dr. Peter Macdonald, Wingham, Ont., has been appointed postmaster of London.—Dr. Frank Hall has again been elected mayor of Victoria, B. C.

The Muskoka Hospital.—In connection with statements made of exorbitant charges being made at the Muskoka Free Hospital for Consumptives, Mr. W. J. Gage, Toronto, writes that no patient is allowed to enter the hospital, no matter how desirous he may be to pay his way, as alleged, at \$15 a week or more, as that institution is for patients who can not afford to pay anything for their maintenance. If a patient can pay \$7.00 a week or more he is admitted to the Muskoka Cottage Sanatorium, a mile distant from the hospital. In the last weekly report of the hospital, dated January 23, there were 65 patients in attendance. Of these 38 contributed nothing to their maintenance; four paid \$3.50 a week or less; four paid \$4.00 a week; seven paid \$5.00 a week, and two paid \$6.00 a week. No patient is refused admission to Muskoka Free Hospital because of poverty.

Annual Banquet at McGill.—At the annual banquet of the faculty and student body of McGill University, the arrangements were under the charge of Mr. T. F. Cotton, B. A. As a feature of the occasion the undergraduate body presented to former Dean Roddick a splendid bust of himself, the work

of Dr. J. J. Ross. Dr. Roddick in replying referred to the Roddick Act, or dominion registration. He stated that it still stood on the statute books of the dominion and could be made use of any day by the medical profession of Canada. Six of the nine provinces are ready to go on with it, while the other three are watching each other. He expects, however, that they will soon come together and put into operation the machinery he constructed several years ago while member of parliament at Ottawa. The new dean, Dr. Francis J. Shepherd, was the guest of honor. In his address he said he took office at a very critical stage in the faculty's career. The fire of 1907 had crippled the faculty; the establishment of the five years' course had curtailed the attendance; and there was the difficulty to handle of getting the necessary financial aid to rebuild and reequip. Despite these the medical faculty was going ahead. He prophesied the time when six years would be necessary for a course in medicine. In his opinion the public ought to give more financial support to medical schools than they do, in the form of endowment.

FOREIGN

Indian Medical Congress.—This congress, which is to be held in Bombay February 22-25, will confine its attention to the special problems of disease and sanitation in India. The work will be done in five sections: Section 1 dealing with cholera, dysentery, typhoid and tropical diarrhea; Section 2 with malaria, plague, Leishman-Donovan body invasion, and relapsing fever; Section 3 with animal parasites and disease carriers, snake venoms, beriberi, mycetoma, leprosy, and elephantiasis; Section 4 with disposal of sewage in India, water supplies, disinfection and naval and marine hygiene, including quarantine; and Section 5 with ophthalmic surgery, vesical and renal calculi and tropical surgery.

The Next International Congress on Climatology.—The eighth International Congress for Hydrology, Climatology, Geology and Therapy by physical agents is to be held in Algiers, April 4-10, 1909. Membership is open to all interested in questions connected with these subjects. The fee is \$4.00. The congress coincides with the celebration of the semicentennial of the medical department of the Algiers University. A number of prominent French physicians form the committee on organization, assisted by physicians in all the other European countries, besides those of Northern Africa. Prof. Max Einhorn, 20 East Sixty-third Street, New York City, is at the head of the committee in this country.

The Catastrophe in Southern Italy.—Following the Sicilian earthquake, the medical profession took the lead in the work of relief, and Professor Durante left at once for Messina with six surgeons from his clinic at Rome and nearly two dozen medical students. About \$5,000 was put at his disposal at once by the Italian Red Cross, with some supplies, and the university students raised another \$2,000. Rummo and Castellino of Naples also organized relief bands. Among the professors in the medical department of the Messina University are G. D'Urso, U. Gabbi, A. Salamon, P. Ferraro and P. Sanfelice. The latter was absent at the time delivering lectures on his method of serotherapy of cancer. He has recently had offers to found an institute for this method of treatment, but it is said that he rejects everything which savors of commercialism. Professor Gabbi was rescued by his 12-year-old, but he lost a daughter in the quake. Some of the other professors were away on their intersemester vacation. The organized efforts of the army surgeons were much more effective after the catastrophe than those of the rank and file of the profession which lacked the advantages of organization for concerted action. Steps have already been taken in high quarters to ensure better organization of the medical forces for sanitary purposes. There were no means of shelter even by the fourth and fifth day after the quake, and physicians had to care for the wounded in a persisting rain, and without any protection from the icy wind blowing a gale from the sea. Bureaucratic red tape is responsible for the lack of the necessary shelters, the *Policlinico* declares, as there are plenty of portable barracks stored away. The impotence of the medical men who hastened to the scene was felt so bitterly that the tragedy by the end of the week was even more moving than during the first days, waiting vainly for the vessels that did not come. The editorial estimates the number of wounded that required care as about 20,000. Cajus land in the highest terms the self-sacrificing labors of the local physicians throughout lower Italy who seemed to escape the earthquake as by some miracle, except at Messina, where the Professors Barbera, Zincone, Mele and D'Urso, with the latter's assistant, Betagh, were among the victims.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 16, 1909.

British Medical Association

An acute controversy is being waged in the British Medical Association on the question of obtaining a charter. As originally construed the objects of the association were almost entirely scientific, but in recent years there has developed a strong tendency to take a more active part in such subjects as medical defence and the relation of the profession to hospitals and clubs. In order to enable the association to devote funds to these objects a legal alteration in its constitution has become necessary and application has been made to the government to grant a charter.

The Health of London

The report of the health officer to the London County Council. Sir Shirely Murphy, for 1907, has just been published. For the third year in succession the death rate has not been exceeded by any previous year and is lower than that of any English town with a population of over 200,000, with two exceptions. In 1905 and 1906 the rate was 15.1 per 1,000 inhabitants, a lower rate than ever recorded; in 1907 it fell to 14.6. This rate compares favorably with the other great capitals of the world. Thus, in 1907, the rates were as follows: Paris, 18.5; St. Petersburg, 24.7; Berlin, 15.4; Vienna, 17.3; Rome, 18.2; New York, 18.5. Comparing the three years, 1905-7, with the decennium 1891-1900, there was a gain of 19,000, 19,000 and 22,000 lives respectively, representing a gain in "life capital" (the total life expectation of those who survived in excess) of 2,000,000 years of life. On the other hand the birth rate for 1907 was 25.6, the lowest recorded in London; the marriage rate was 17. The death rate from the principal epidemic diseases was very low—only 1.42. No death occurred from smallpox and the death rates from measles, influenza, diphtheria, enteric fever, diarrhoea and phthisis were below the average, but those from scarlet fever and whooping cough were above it. The condition as to vaccination is not satisfactory. During the first five years of the present decennium there were nearly 651,000 births, leaving after subtraction of deaths some 530,000 children under the age of 5. Of these, due to the abolition of compulsory vaccination, over 100,000 are unvaccinated. The existence of so large a proportion of unvaccinated children is necessarily a standing danger, although a considerable interval may elapse without any ill result.

The Youngest Known Human Embryo

Dr. J. H. Teacher of Glasgow has discovered the youngest known human embryo. Previously the classical 15-day ovum described by Professor Peters held that position. The ovum now in question was shown to the German Anatomic Society by Teacher and was accepted by Professor Peters as at least a day younger than his embryo. It is 0.77 millimeter in length and its age is established by the fact that only one coitus had to be taken into account and by the relation of this to the expected onset of menstruation. It is established beyond doubt that the maximum possible age is fourteen and one-half days, and the minimum twelve days. By comparison with other early embryos Dr. Teacher draws a number of conclusions. He agrees with v. Spee that there is an interval of seven days between fertilization and implantation of the ovum in the endometrium. Fertilization may occur at any time during the intermenstrual period and embedding either during endometrial quiescence or during what would be a premenstrual period if pregnancy had not occurred. He does not think that menstrual decidua is a preparation for the ovum or that menstruation is the abortion of an unfertilized ovum.

The Lay Press and Nostrums

Nowhere is venality more marked than in the degraded tone of the London press. It mainly represents capitalist interests and in any organ from the *Times* downwards one may read articles in denunciation of opponents which are a tissue of fallacies. To give the writers any credit for honesty one has to assume an incredible depth of ignorance. In such a medium it is not to be expected that the nostrum vendor will suffer from much restraint. The advertisement pages are freely open to him to put forward any claims however absurd. Sometimes there is a curious divergence between the editorial and advertisement columns. Thus in an editorial on a case in the law courts the *Times* lamented the fact "that the advertisement sheets of certain publications are continually made the vehicles of statements which can only be described as preposterous and frequently as being false to

the knowledge of those who make them." The advertisement in question was appearing in the *Times* at the time and has appeared ever since! But the evil does not stop with the advertising pages. Not satisfied with advertisements *on* the same sheet as reading matter advertisers encroach on the reading matter itself. To encounter an article apparently devoted to some general topic of interest and to find after reading a column or so that it is simply an advertisement in a disguised form is an old experience. But of late one has become familiar with something much more specious—an editorial devoted to the same end. One of the most popular periodicals of the day is *T. P.'s Weekly*, edited by Mr. T. P. O'Connor, M. P. It is devoted mainly to the review of books and other literary subjects, and is of a high standard. Some time ago, under the title, "Forces," a series of articles appeared on the most eminent men of the day, such as Lord Kelvin, George Meredith and others distinguished in science and literature. One week the paper had the audacity to insert in the series an article devoted to Sandow, the gymnastic teacher. Gymnastics are an excellent thing in their way, but Sandow is exploiting his system, like any other nostrum vendor, as a cure for almost all the ills that flesh is heir to. It is heavily advertised in the press and even physicians have been enlisted to write testimonials for it. In the article in question, Sandow was represented as one of the greatest benefactors of humanity of the day. Of course the address of his establishment, to which no one would apply in vain, was given. In *Vanity Fair*, another high class periodical, is an article entitled "Health and Beauty," signed by the wife of the journalist mentioned above, a lady who is also well-known as a journalist. After reading into the second column one discovers that the object of the article is to exploit "Dr. Hommel's Hæmatogen." The address of the vendor is given of course.

London Hospitals

The work performed by the London hospitals in a year has been summarized by Mr. Percy E. Braun, the winner of the Howard Medal of the Royal Statistical Society for an essay on "The Cost, Conditions and Results of Hospital Relief in London." The chief items are as follows: Number of hospitals, 123, including twelve children's hospitals; total ordinary expenditure, \$5,000,000; cost of provisions, \$1,250,000; surgery and dispensary charges, \$590,000; number of beds, 10,947; daily average of beds occupied, 8,977; in-patients, 132,670; out-patients, 1,871,495; out-patient attendances, 5,200,705; income from invested property, \$1,300,000. Mr. Braun finds that the management expenses of the hospitals varies from 1.3 to 26 per cent. of the total ordinary expenditure. The most economical working in this regard was secured by the very large and the very small hospitals.

Gift for Medical Research

The medical school of London Hospital has received a benefaction of \$100,000 which has been placed in the hands of its trustees to be invested to the best advantage. The income is to be paid yearly to three administrators, selected by the donor, who are to spend it in the advancement of medical research and the promotion of higher medical education. The administrators for this year are the chairman, Mr. Sydney Holland, and two members of the hospital staff. The money is to be spent on increasing the facilities for research and not on the routine teaching. The benefits of the gift will not be confined to students educated at the London Hospital but will be open to physicians from any part of the British empire who are willing to give up their time to advancing medical knowledge within the walls of the hospital. Young men capable of doing good scientific work are at present forced too soon into the routine of practice or teaching, by the necessity of earning a living. This fund will enable a certain number of carefully selected men to be freed from this necessity and apply themselves to research. The donor of this gift wishes to remain anonymous in the hope that the fund which he has just started will be increased by others. Some such fund is certainly much needed, as the British government does practically nothing to help research work but leaves everything to private munificence and enterprise.

Nurses for the Territorial Army

The new scheme for a territorial army equipped in every way analogous to the regular army instead of the old-fashioned militia and volunteers, has involved a vast plan of medical organization. As explained in previous letters, buildings have been marked out for use as hospitals in time of war and some of the most eminent surgeons in the country have volunteered their services in the various districts for staffing these

hospitals. A parallel scheme of nursing has now been devised. A meeting was held in London for the object of appointing a committee to carry out the scheme of the War Office for the creation of a nursing service for the territorial force of London. In addressing the meeting, Sir Alfred Keogh, director general of the army medical service, stated that under the old volunteer system there were no proper field hospitals at all. It was thought that the ordinary hospitals would, if the emergency arose, receive the sick and wounded of the volunteer force. At the beginning of the late South African war the managements of the great civil hospitals were questioned with regard to the number of beds they could place at the disposal of the army, and it was found that there would not be more than 400 available. As this was a very inadequate provision, the War Office decided to call on the civil medical profession. Realizing that there was nothing between the field ambulance at the front and those hospitals, the newly formed British Red Cross Society was asked to take part in the general medical management of the territorial army. The War Office has agreed to remove the sick and wounded from the area of operations, asking the Red Cross Society at the same time to work in each of the great centers of medical activity, such as Aberdeen, Oxford, Glasgow and Cambridge. Each nurse must be qualified for this service by three years' hospital training. The country has been divided up into twenty-three centers, each containing a ladies' committee. It is estimated that there will be 520 beds in each hospital. Matrons will be trained for these hospitals by going one week in every second year to one of the great military hospitals to gain experience. London is to have four hospitals with 120 nurses each. An influential committee of ladies was appointed to carry out the scheme.

Cerebral Hemorrhage and Employers' Liability

The recent Employers' Liability Act, which greatly extends the liability of employers for the accidents of workmen in the course of their occupation, is constantly raising difficult legal questions as to whether the morbid condition is due to the occupation or not. The latest question has arisen with regard to cerebral hemorrhage. A workman, while employed in lifting a heavy weight, had cerebral hemorrhage. He was put to bed, and four days later a second attack occurred, which was followed by permanent paralysis. At the time of the first attack his arteries were in a degenerate condition. The sheriff-substitute at Glasgow, before whom the case was tried, found that the workman had received personal injury by accident in the sense of the Workmen's Compensation Act. An appeal was made to a higher court. The court of sessions, to which the appeal was carried, held that the workman's final disablement was caused by accident arising out of and in the course of his employment within the meaning of the act. Lord McLaren, in giving judgment, referred to a precedent, a case of injury to the muscles of the back caused by over-exertion in the course of a man's employment. He could not see any distinction between this case and the rupture of the cerebral vessel. This wide extension of employers' liability has had a consequence unforeseen by its framers. The act was brought in by a liberal government under pressure from the labor party. The object of the latter is, of course, to get as much as possible for workmen regardless of consequences to any one else. Employers insure their workmen against accident. When insurance companies find men suffering from some affection such as a slight defect of sight which may increase the risk of accident they refuse to insure them. The result is that many men quite fit to work are refused employment because of some slight disability. Probably as the result of the decision in the present case a man whose arteries shows signs of degeneration will find employment more difficult to obtain.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 16, 1909.

Annulment of the Unpopular Competitive Examination

At a cabinet meeting, January 11, the minister of public instruction announced that as a result of the investigation made into the conditions under which the written tests of the "competitive examination for admissibility to the *agrégation*" were made, he was convinced that these conditions had been entirely abnormal. He has decided consequently to annul the results of this examination. Moreover, the council of the faculty, at its session of January 14, heard and discussed the report which Professor Pinard had been commissioned to submit for the information of the minister of public instruction, on the unanimous feeling (the opinion of the promoter of this *concours*, Professor Bouchard, ex-

cepted) of the professors of the Faculty against this examination. It is, therefore, more than probable that, notwithstanding the efforts of Professor Bouchard to defend this institution, the system of a competitive examination entitling the winners to compete for the subordinate chairs in the medical schools is destined to disappear.

Two New Professors at the Paris Medical School

The faculty has been called on to fill the vacancies in two chairs, viz., that of operative medicine, rendered vacant by the nomination of Dr. Quénu to one of the chairs of clinical surgery (in place of the lamented Professor Berger), and that of clinical surgery occupied by Professor Le Dentu, who is retiring. There were six candidates for the chair of operative medicine, and Hartmann was elected by 22 votes against 12 for Lejars. For the chair of clinical surgery, Pierre Delbet was elected by 22 votes as against 9 for Schwartz and 2 for Tuffier.

Reopening of the Faculty to First and Second-Year Students

The minister of public instruction has authorized students of medicine of the first and second years to return to work in the medical school (in the practical courses) but at the first breach of order this permission will be withdrawn. If no fresh disorders occur, first and second year students may be allowed to take the usual January and March examinations cumulatively in March.

The Cross of the Legion of Honor for a Hospital Interne

In the New Year's appointments to the Legion of Honor appears the name of a hospital interne, M. Louis Bazy, son of the well-known surgeon. The act of courage which gained for the young interne—he is only 25 years of age—this distinction is as follows: One day last March, he being then an interne in the service of the late Professor Berger, at the Necker Hospital, was assisting his superior in an operation for purulent pleurisy when a jet of pus squirting from the wound struck him in the left eye. He ought at once to have disinfected the eye, but as this would have entailed a temporary arrest of the operation, Bazy remained courageously at his post. Some days afterward serious ophthalmia developed, and after six months of suffering enucleation of the eye was found necessary. A few days later, when this courageous act was related to the president of the republic, he decided to bestow the cross of the Legion of Honor on M. Bazy. It is worthy of remark that, since the system of internes (*l'internat*) was established in 1802, the list of internes who have met their death in the accomplishment of their professional duties is a long one, and the marble tablets in the Hôtel-Dieu, below a bas-relief by the sculptor Denys Peuch, are covered with the names of these noble martyrs to duty. About thirty years ago, the cross of the Legion of Honor was taken, four hours before his death, to the interne, Herbelin, who was attacked with diphtheria at the Trousseau Hospital.

Decrease of Tuberculosis in Postoffice Employés

Dr. Héricourt recently presented to the government chief of the postal and telegraph services his annual report on the service of special consultations for diseases of the chest in the postal service, and on the hygienic inspection of the post-offices of Paris and of the department of the Seine. This medical service was established in 1905 to combat the ravages of tuberculosis among postal employés. The results obtained are most encouraging, as the number of tuberculous employés, which in 1906 was 1,048, fell in 1907 to 808, and in 1908 was only 505; that is to say, in the space of three years the morbidity from tuberculosis has diminished by 50 per cent. This result is due to three important measures: In the first place, the government undertook the sanitation of the postoffices, rendering sanitary those buildings which were capable of such transformation, and condemning those in which the conditions could not be ameliorated. In 1908 there remained 54 sanitarily defective postoffice buildings, as against 91 in 1906 and 77 in 1907. To suppress the dangers of contagion, each employé affected with tuberculosis was supplied with a pocket cuspidor and care was taken that he made use of it. Finally, those affected in the first degree were accorded a long leave of absence on good pay, which permitted the arrest of the disease at its commencement.

Medical Inspection in the Schools of Paris

The inadequacy of medical inspection in the schools of Paris has become particularly manifest since the closing of the Roman Catholic schools has nearly doubled the number of scholars in certain rooms of the public schools. The com-

plete reorganization of the medical inspection service is to come up at the next meeting of the city council. It is proposed to increase the number of *circumscriptions* from 49 to 175. The high schools and the technical schools will be included in the new service on the same footing as the primary schools. The plan proposed defines the rôle of the medical inspector as follows: The physician shall inspect the existing schools, taking account of the cubic air space of the rooms, their lighting, ventilation, etc. He shall be consulted in regard to schools under construction, and shall not neglect during his visits to take note of the cleanliness of the building. The measures proposed particularly call the attention of physicians to the benches and desks, which, as LeGendre has stated, have created generations of myopes and of crookbacks. The prophylaxis of transmissible diseases will be assured, particularly by vaccination and revaccination. It is further proposed to make out for each pupil at the time of his entry into the school, an anthropometric record (weight, height and chest measure), a physiologic record (defects of vision and troubles of hearing), and an organic record (constitutional weakness, rachitis and tuberculosis). The necessity of giving both to pupils and masters elementary instruction in hygiene, to put them in position to defend themselves usefully against the great scourges which decimate the race—alcoholism, tuberculosis, etc.—is to be emphasized, as also instruction in the hygiene of daily life, how to breathe, to nourish themselves, to clothe themselves comfortably and to keep themselves clean. In this respect it is to be much regretted that the shower baths installed in a certain number of schools are not introduced in all. The medical inspectors are to be recruited by competitive examination. Their visits will be made weekly. The salaries will range from 800 to 1,200 francs per annum (\$160 to \$240).

Respite from Toil for Pregnant Workingwomen

Since the Berlin Conference of 1890, to the recent Congress at Rheims, the desirability of enforcing rest for workingwomen during pregnancy and after delivery has been repeatedly urged since toil in workshop or factory is particularly prejudicial both to the health of the mother and to the development of the child. There are, however, great difficulties in the way of the realization of the principle. Germany and Austria alone have passed effectual regulations in this line, for they have supplemented the prohibition of work by the pecuniary relief necessary to make the prohibition operative. In France, Italy and Switzerland, bills are under consideration for assuring to convalescent mothers aid during the suspension of their work. But, curiously enough, what especially retards the realization of this reform is the attempt to give too wide a scope to such assistance. In the French Chamber of Deputies some time ago, and recently in the Senate, such bills have failed of adoption, because they provided for giving of such relief to all wage-earning mothers, not merely to those employed in workshops or factories. It is nevertheless evident that the workingwoman in the factory or workshop has greater need of protection than the farm servant or the housekeeper.

The Hygiene of Mines and the Diseases of Miners

M. Gréhan, professor of general physiology at the Museum of Natural History, and member of the Academy of Medicine, has devoted himself for some time to the study of the application of physiology to hygiene. The perils of mining—diseases of miners and dangers of explosive gases—have particularly occupied his attention. He has recently been charged with a scientific mission to Belgium to study ankylostomiasis there, and some days ago he gave a public address on the occupation risks of miners, in which he presented a noteworthy summary of his work on fire-damp in mines, prosecuted since 1892. His researches have resulted in the construction of a simple apparatus for revealing even traces of fire-damp in the air; it thus becomes possible to note the proportional content at which an explosion of gas is to be feared. This proportion becomes considerably reduced when the atmosphere contains coal dust, and it was precisely the presence of coal dust which determined the terrible catastrophes at Courrières in France, at Fairmont in the United States, and at Hamm in Germany. To date, the best remedy known against fire-damp is thorough ventilation of the mines. It is necessary, however, frequently to take stock of the proportion of dangerous gases contained in the air. Gréhan considers it absolutely necessary to make, day and night, repeated analyses of the air in the galleries, and he has simplified the eudiometric apparatus in such fashion that the air can be tested frequently, each test requiring only five or

six minutes. [His communications on the subject have been summarized in THE JOURNAL as they appeared.—ED.]

In regard to the question of parasites, it is interesting to note that Weinberg, in collaboration with Leger and Romanovitch, has been able, recently, to demonstrate in many mining departments of France the existence in an endemic state of an enteritis due to an intestinal anguillula. The latter is found especially in the foci of ankylostomiasis, both parasites needing for their development the same conditions of temperature and humidity. Weinberg has also shown that the mines of central and southern France are not free from the hookworm as is generally supposed. Speaking generally, intestinal helminths are met with in nearly 70 per cent. of miners. The trichocephalus is far the most frequent; the ascaris less so. With the exception of the ankylostoma and the anguillula, the intestinal parasites are found with a frequency almost equal among deep and surface miners, both making a daily use of uncooked vegetables derived from gardens fertilized with human manure.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Jan. 18, 1909.

Instruction in Medical Ethics

The Vienna Aertzekammer (local medical council of Vienna) has presented to the minister of education a petition for the creation of a special chair for instruction in medical ethics and sociology, according to a . . . following points: (1), the relation of the . . . the general public, the local authorities, and the law, civil and criminal; (2) his duties toward the local medical organization; (3) the relations between the doctor and his patients, the duties and rights of the latter in these relations, and his duties toward his colleagues in private practice (medical ethics in the stricter sense); (4) the duties of the doctor in regard to contract, club and insurance practice; and (5) the notification of diseases (infections, industrial or occupational).

Besides these social-medical subjects, social hygiene should be taught theoretically and practically. Physicians are not now, in Austria at least, in the front rank of those who are grappling with this problem; they must regain this position. The following subjects are recommended as appropriate for study: History of social hygiene, social statistics (morbidity and mortality of various classes, occupations, races, ages), and special hygiene (schools, buildings, food). If these studies were added to the curriculum of the medical student, the competence of the future physician would be increased and social progress advanced.

Campaign Against Idiocy and Cretinism

A report of the ministry of the interior gives some interesting figures in regard to the extensive government measures for combating the conditions of hypothyroidism and athyroidism, which are known to cause idiocy. Professor Wagner has made extensive studies and experiments in the regions in which these conditions prevail—several mountainous districts in the Alps and the Karst mountains with clay and lime subsoil. With Wagner's researches as a basis for work, local physicians have been instructed to administer thyroid tablets to certain idiots and to report on the result; 124 persons were thus under observation. In 80 per cent. a marked improvement was obtained in four to eleven months, under administration of quantities of 36 to 100 gm. (1 to 3 ounces) of thyroid substance; 12 per cent. showed no improvement within one year, while 8 per cent. did not tolerate even small doses well. In nearly all cases the integument became fairly normal, the height increased a little, and the intellectual qualities improved.

The Housing of the Poor

Rents are becoming very high in Vienna; but, slums not being allowed there, the question of the housing of the poor is a burning one. A philanthropic society has been organized with a view to the erection of a number of workingmen's houses which shall meet the requirements of hygiene and of the small means of the tenants. Among the rules in accordance with which the houses are to be planned are the following: No back rooms except kitchens, conservatories and corridors may look into the yard. Each floor must have a bathroom. The cubic air space must be at least 45 cubic centimeters per room. Overcrowding (more than four persons in a room) is not to be allowed. Sufficient provision must be made for ventilation and water supply. Water closets are to be arranged so that they will be warmed by the smoke coming from the kitchen stoves. The last provision is a novelty here and is very useful in winter.

The Antialcohol Movement

A recent report of the League of Austrian Antialcoholists contains much interesting information. For instance, many clinical teachers in the German and Slavic universities of Austria (in Vienna, Prague, Cracow, Lemberg and Graz) have recommended a non-alcoholic plan of treatment of diseases, such as pneumonia, erysipelas and septicemia, in which alcohol has hitherto been frequently used. Among the students, who still regard beer as indispensable at their meetings, the antialcohol movement is constantly gaining ground, in part because of the admission of women to the universities. The league has devoted considerable sums, thus far in vain, to the search for a substitute for beer.

The national expenditure for intoxicating beverages amounts to \$250,000,000 for a population of 28,000,000 in the Austrian part of the empire. Temperance, instead of total abstinence, is now recommended in many parts of the country; this compromise attracts a larger following to the league. The necessity for temperance is now taught in many of the schools. Students matriculating at the universities are handed leaflets admonishing them, among other things, to let alcohol alone.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE
AMERICAN MEDICAL ASSOCIATION.]

ZINC PERMANGANATE

An Examination Made to Determine the Purity of Preparations on the Market

W. A. PUCKNER and W. S. HILPERT

Zinc permanganate, not being official in any pharmacopeia, has no definite standard of purity. At the request of the Council on Pharmacy and Chemistry, an examination of zinc permanganate tablets was taken up in the Association's laboratory. To judge the quality of the tablets, it was necessary to learn the quality of the available brands of zinc permanganate on the market, an examination of which was undertaken.

ZINC PERMANGANATE

Specimens were purchased in the open market and, in order to obtain samples of recent manufacture, the various manufacturers and dealers were advised that their products were to be examined and were requested to submit specimens. In general, the purpose of this examination was endorsed and samples were promptly submitted.

In appearance the samples varied from dry, lustrous, crystalline masses of a dark-brown, almost black color, to moist, fine particles, more or less contaminated with the decomposition products of the permanganate. The bottles containing the moist samples bore evidence of decomposition by the varying degrees of discoloration of the inner surface of the glass. The specimens varied but slightly in solubility, all dissolving to deep violet-red solutions containing varying quantities of insoluble manganese oxid.

The specimens were examined¹ to determine their permanganate contents with the following results:

BRAND.	SOURCE.	PER CENT. OF Zn (MnO ₄) ₂ · 6H ₂ O.
The Mallinckrodt Chemical Works..	Purchased	73.77
The Mallinckrodt Chemical Works..	Submitted	73.70
Powers-Weightman-Rosengarten Co..	Purchased	97.05
Powers-Weightman-Rosengarten Co..	Submitted	96.99
Merck & Co.....	Purchased	88.72
Merck & Co.....	Submitted	91.49
Lehn & Fink.....	Purchased	72.76
Lehn & Fink.....	Submitted	96.77

1. The method of valuation adopted was the one proposed and used by Dr. J. Biel (Proc. Am. Pharm. Assn., xxix, p. 268) in his examination of commercial solutions of zinc permanganate, i. e., the titration of the solution by standard oxalic acid. Because of the varying purity and quantities of insoluble matter, admixed with and covering some of the particles, it was considered necessary to triturate the samples with water to extract completely the soluble matter. The samples were triturated with water, the mixture transferred to an asbestos filter and the filter washed till all the soluble matter was in solution. To the solution thus obtained dilute sulphuric acid was added, the solution warmed and treated with an excess of tenth-normal oxalic acid solution and then titrated back with tenth-normal potassium permanganate. Each cubic centimeter of tenth-normal oxalic acid is equivalent to 0.00408 grams of zinc permanganate, Zn (MnO₄)₂ + 6H₂O.

The specimens of the Powers-Weightman-Rosengarten Company's product were large crystalline masses free from any coating or admixture and readily soluble, leaving scarcely any insoluble matter. The Mallinckrodt Company's product was in small moist particles, devoid of the metallic luster characteristic of the product. It dissolved less readily than the P.-W.-R. brand and left considerable insoluble matter. The samples from Merck & Co. consisted of medium sized masses, free from moisture, but not so lustrous as the purer samples; they dissolved rather readily, but left an appreciable quantity of insoluble matter. The specimen bearing the name of Lehn & Fink, purchased in the open market, consisted of very finely divided material showing considerable evidence of decomposition; on the other hand, the specimen submitted was free from any signs of deterioration and consisted of large, well-formed, unbroken and dry crystals.

TABLETS OF ZINC PERMANGANATE

Three specimens of zinc permanganate tablets were examined. One specimen was submitted for examination by Burroughs Wellcome & Co.; the other two were products of H. K. Mulford Co., one specimen being supplied by the firm and the other purchased in the open market.

BURROUGHS, WELLCOME & CO.'S TABLETS: The tablets submitted by this firm showed unmistakable signs of decomposition by the presence of a coating of manganese oxid, which penetrated the interior of the tablets to some extent. They were very hard and dissolved very slowly, when simply agitated with a large amount of water, yielding in this manner only about 50 per cent. of the permanganate actually contained therein. When placed in the quantity of water required to make a solution of the strength suggested by the manufacturers the individual tablets varied in the ease with which they dissolved. In one case the tablet, in the required amount of water and frequently agitated, required three hours for complete disintegration; another required four hours, and still another after being in water eighteen hours showed only faint signs of disintegration. Only when the tablets were disintegrated by trituration with water was it possible to dissolve all the permanganate present. The tablets contained 86.28 per cent. of the claimed content of zinc permanganate (0.008 gm. per tablet).

H. K. MULFORD CO.'S TABLETS: In these tablets the properties were found to correspond more nearly to pure zinc permanganate. In color the tablets were almost black, showing no signs of decomposition or discoloration and were easily disintegrated in water, leaving scarcely any insoluble matter and requiring no trituration to effect solution; but in the actual estimation the tablets were all triturated simply for the sake of uniformity of technic. The tablets contained, in the specimen purchased in the market, 89.60 per cent. and in the specimen submitted by the manufacturer 89.58 per cent. of the amount of zinc permanganate claimed (1 grain per tablet).

SOLUTION OF ZINC PERMANGANATE

One specimen of Merck's zinc permanganate solution, 25 per cent., was also examined. It was found to contain 95.45 per cent. of the amount of zinc permanganate claimed, and might, therefore, be pronounced as complying with the label.

In 1881, Biehl² found that some brands of zinc permanganate solution had only 7 per cent. of the amount of the salt they were claimed to contain, while some of the crystalline solid products contained only 62 per cent. zinc permanganate. It is commendable that the manufacturers have made sufficient improvements since that time in the manufacture of zinc permanganate to bring it to the uniformity of the present-day product. The analyses show that the specimens found on the market (with one exception, that of Lehn & Fink), correspond in composition with those obtained direct from the manufacturers or dealers.

From the above it will be seen that the purity of zinc permanganate now on the market varies from 72.76 per cent. to 97.05 per cent., a difference of 23.29 per cent. In view of this, it is evident that some standard of purity for

2. Proc. Am. Pharm. Assn., xxix, p. 268.

zinc permanganate should be established.³ With this end in view, this examination has been submitted to the Council on Pharmacy and Chemistry with the following recommendation: That zinc permanganate be included with New and Nonofficial Remedies as an unofficial non-proprietary article, and that it be required to contain not less than 90 per cent. of pure zinc permanganate. Physicians desirous of using this product will, therefore, be able to obtain a salt of good quality if they will write in their prescriptions: "Zinci Permanganas, N. N. R."

As zinc permanganate is more easily reduced than potassium permanganate, the zinc salt is said to be the more powerful antiseptic and the claim is made that a comparison of the efficiency of the two substances based on the permanganate test is perhaps open to criticism. Physicians who wish to experiment with zinc permanganate may be interested in knowing that owing to its higher molecular weight zinc permanganate must be used in relatively larger quantities than potassium permanganate, provided the same permanganate content is wanted. By comparison of the equivalent molecular weights, about 1.4 gm. commercial (90 per cent.) zinc permanganate contains the permanganate equivalent of 1 gm. potassium permanganate.

CATARRH AND COLD CURES

The Composition of Some "Patent Medicines" Analyzed by the British Medical Journal

In continuing its investigation of secret remedies, the *British Medical Journal* (Oct. 24, 1908) takes up "catarrh and cold cures," giving analyses of Dr. Lane's Catarrh and Cold Cure, Van Vleck's Catarrh Balm, Dr. Mackenzie's "One Day" Cold Cure, Keene's "One Night" Cold Cure, Munyon's Catarrh Tablets, Munyon's Special Catarrh Cure, and Birley's Anti-Catarrh.

Dr. Lane's Catarrh Cure turns out to be a dilute solution (0.4 per cent.) of phenol (carbolic acid) and common salt (3.3 per cent.) in water. The preparation on which the Keene company guarantees the breaking up of any "ordinary" cold in one night is said to consist of "Cascara, Bromid, Quinin, Ipecac, Camphor, Bryonia." The analyst was unable to find any indication of bromid, camphor, cascara or ipecac, while the quinin turned out to be a trace of impurity in the cinchonin present, but he did find acetanilid in very appreciable quantities.

Munyon's Special Catarrh Cure consisted of sugar, which had possibly been medicated with a tincture containing infinitesimal quantities of medicinal agents. The usual disproportion between cost and retail price is maintained in these as in other secret remedies.

Editorially the *British Medical Journal* takes up these "catarrh cures" as examples of the methods of the nostrum makers and notes how the seriousness and evil consequences of the disease are exaggerated, quoting the statement from the advertisement of one of the articles that "it is estimated that over 20,000 people died in the United Kingdom last year of consumption caused by catarrh." "The remedy put forward for this malignant disease is shown," says our contemporary, "to consist of a solution of a pinch of common salt with a trace of carbolic acid, the actual cost of the quantity sold for a shilling [24 cents] being one-thirtieth of a farthing [1/60 of a cent]." The *British Medical Journal* concludes: "So long as quack and secret nostrums enjoy their present immunity from legal control, the only way to educate the public out of the practice of resorting to their employ-

ment appears to be persistent exposure of their useless or harmful nature. The public, or that part of it which plumes itself on its knowingness, is perhaps disposed to assume that the opinions of medical men on the subject are biased. But accurate statements of the real composition of particular nostrums can hardly fail to carry weight, even with the most suspicious."

The Proprietary Habit

The *Druggists Circular* (January) comments on the complaint of a pharmacist who has become discouraged because after several joint meetings of physicians and pharmacists in his city a physician's prescription has come to his notice in which were included four different proprietaries. The drug journal reminds the faint-hearted druggist that probably the great majority of physicians in his city have given up the use of nostrums and suggests that he should not lose heart so easily. It continues:

"We wonder how often and through how many years this druggist's mother, when he was a little boy, told him that he must hang up his hat when he came into the house and not throw it on a chair or table or bed where it would be in other people's way, look disorderly and be hard to find when he wanted it. And he had not been begged, pleaded with, argued to and bribed with many free samples, blotters, note books, calendars, pencils, prescription pads and the like, to throw his hat around, and he had not formed a more or less fixed habit of doing this before his mother began to work on him. Let us suppose that she had explained to him the advantages from an economic, artistic and ethical standpoint of hanging his hat on the rack in the front hall and had repeated the explanation once every three months for a year, while bad boys were giving him tops, bean shooters, pop guns, licorice sticks, twine, marbles and now and then a kite or a toy steam engine or a bow and arrows, to induce him to continue to hang his hat on the floor or mantel, what would have been the result?"

Hoff's Cure for Consumption

Several inquiries regarding the composition of "Professor Hoff's Cure for Consumption" having been received, the chemical examination of this preparation was taken up in the Association laboratory. The following is the report of the analysis:

Professor Hoff's Cure for Consumption, manufactured by Bendiner & Schlesinger, Third Avenue and Tenth Street, New York, is a dark brown liquid with a bitter taste and an odor of opium. The label on the bottle—at least since the advent of the Food and Drugs Act—states that the preparation "contains, in addition to other valuable medicaments, watery extract of opium 2 grs. to each ounce." Besides opium the preparation was found to contain approximately 2.5 gm. sodium cinnamate to each 100 c.c., sugar and a caramel-like coloring. The presence of heavy metals, iodids or bromids, could not be demonstrated.

The "Cure," then, consists essentially of sodium cinnamate (hetol) and extract of opium, a mixture at one time suggested for the treatment of tuberculosis, but which like many remedies has since been discarded. A remedy which depends on opium for whatever therapeutic effect it may have, is, when sold indiscriminately to the laity, inherently vicious.

Correspondence

Better Statistics of Industrial Mortality for the United States

To the Editor:—I read with much interest the leading editorial in *THE JOURNAL*, Jan. 9, 1909, p. 138, on "Industrial Hygiene: a Neglected Field," and wish to make it the basis of an appeal for the cooperation of the medical profession of the United States in securing more definite statements of specific occupation and industry of decedents on certificates of death. As you justly say, in this country industrial mortality and morbidity statistics are inadequate and often misleading from their very inadequacy; and this unsatisfactory condition contrasts strongly with the completeness of industrial mortality statistics in the other countries.

³ The need of some standard is indicated by a report from the analytical laboratories of the H. K. Mulford Co., (*Am. Jour. Pharm.*, May, 1908, p. 224) in which the following general statement is made:

"During the last few months we were unable to get a zinc permanganate which was entirely soluble in water. As this product is used not only for injections, but also for eye washes, it would evidently be dangerous to use a product containing insoluble matter, the latter causing irritation of the membranes to which the solution is applied. The best sample we got hold of contained 8 per cent. insoluble matter; one sample submitted to us by a prominent house contained even 32 per cent. insoluble matter. As we all know, the salt decomposes very rapidly if exposed to light and air, but the once decomposed salt is certainly unfit for medicinal purposes."

The mortality of occupations is one of the most difficult problems of vital statistics, especially in the United States, where only a little over one-half of the population possesses fairly complete registration of deaths. The accuracy of figures showing occupational mortality from various causes of death depends on the completeness and precision with which several factors are recorded. These are: 1, occupation and age (in the census enumeration), 2, occupation and age of decedents (on certificates of death), and 3, cause of death (stated by the attending physician, health officer or coroner on the medical certificate). It is especially important that the mode of statement of occupation and of age shall harmonize on the population schedules and the transcripts of deaths, as otherwise the ratios of occupational mortality which are based on the comparison of these two sets of returns will be to some extent unsatisfactory.

Much attention is being given to the subject of occupation by the division of population of the census in connection with the preparations for the taking of the thirteenth census in 1910. The census bill, now in conference, provides for the statement after "occupation" of "whether or not employer or employé," and it is contemplated to ask the further question of "by whom employed," so that by reference to a list of industrial establishments, it is hoped, the precise nature of the industry as well as the specific character of the occupation of the individual can be established. Furthermore, an analytical study is now being made of the extremely numerous terms returned at the twelfth census for the designation of occupations, so that for the first time in this country the material will be available for a thorough classification of occupations. On the basis of this information and of previous experience precise instructions will be formulated for the enumerators of population at the approaching census, and it seems likely that the data relating to the occupations of the inhabitants of the United States who are enumerated in 1910 will be more valuable than any ever before collected.

Efforts are likewise being made to secure better reporting of occupations in the mortality returns. At the meeting of the American Public Health Association at Atlantic City, 1907, I submitted for consideration by the organized registration officials of the country propositions which emphasized the importance of uniformity of instructions in regard to the reporting of occupations in the population and mortality schedules, and specified the following points on which information might be secured: The kind of industry (pottery, for example) as well as the kind of occupation (laborer, for instance); the length of time employed from beginning the occupation until death; in the case of a recent change of occupation, the nature of the previous occupation, which may have been the predisposing cause of death; in the case of persons unemployed, the last previous employment, for the same reason; occupation of all decedents over 10 years of age, and of all decedents under 10, if employed in any gainful occupation; in the case of children under 10 years old, the occupation of the bread-winning parent.

The suggestions were published in the *Quarterly Publications of the American Statistical Association*, December, 1907. At the second annual meeting of the American Public Health Association held at Winnipeg, August, 1908, two of the propositions were adopted, and have now become accepted rules of practice of the registration officials of the United States. These are the rules that the nature of the industry should be ascertained as well as the nature of occupation, and that the occupation of all decedents over 10 years old should be stated, also the occupation of decedents under 10, if engaged in any gainful occupation.

The other propositions are still under consideration and will be reported on at the meeting to be held at Richmond, Va., during the present year. At the same time, a revised form of the "standard certificate of death" will be adopted, of which the improved statement of occupation will form a part, so that we shall be able to begin the use of the new blank on Jan. 1, 1910, and thus obtain better returns of occupations for the census year. It will then be possible for the

Bureau of the Census to prepare, for the reporting of occupations, instructions that will be entirely consistent with the instructions given to enumerators for the return of occupations on the population schedule, and, with the cooperation of the state and city registration services, these instructions can be brought to the attention of every physician, undertaker, and local registrar in the United States who has to make out the original reports.

In the United States physicians do not as a rule, though they do occasionally, certify to the occupation of the decedent, but they might readily note, when the certificate is presented for statement of the cause of death, whether the occupation is properly stated or not. In fact, it might be possible to provide for an indorsement by the medical attendant of the statement of occupation, with the addition of such details as may be necessary for proper classification. He could call special attention to the effects of former occupation as determining the cause of death.

I am afraid, however, that physicians would be apt to consider even the simplest addition to the present form of question as unduly complicated and as savoring too much of "red tape" and inquisitiveness into personal particulars; and if so, it is not likely that the other classes of informants, who may not understand the practical uses of the data, will be likely to yield better results. I should therefore be very glad to learn the personal views of as many physicians as possible in all parts of the country with respect to the suggestions made for obtaining a better statement of occupation on the certificate of death, and to know how fully the medical profession is disposed to cooperate therefor.

What physicians can readily do without question is to furnish more precise statements of cause of death, and to use only the accepted medical terms to describe well-known diseases, taking special pains to note that diseases or injuries due to occupations are definitely indicated. Thus "lead poisoning (house painter)" would clearly indicate, not a case of accidental acute poisoning from some salt of lead, but a probable chronic poisoning, and, moreover, occupational, thus definitely assigning its position in the international classification. The painter may have been compelled to relinquish his proper occupation on account of his illness from the effects of lead, and the occupation given by the informant may have been of quite a different sort. The physician's statement will enable the true connection of occupation and disease to be shown. The means of the injury should always be given in deaths from violence, and a clear statement as to whether the violence was accidental, suicidal or homicidal. If the injury was connected in a direct way with the decedent's occupation and the occupation is not clearly stated under the head of "personal particulars," then reference to it may be made in the statement of cause of death. For example, the informant may have given the occupation of a certain individual as "laborer." The physician, noting the insufficiency of the statement, may report under cause of death: "Accidental fall down shaft (coal mine)." This will enable a correct compilation to be made.

Mortality statistics of occupations can not rise above their sources with respect to accuracy, and it would be a mistake to make too elaborate compilations of data for which the original statements were lacking in precision.

CRESSY L. WILBUR, M.D., Chief Statistician.

Bureau of the Census, Washington, D. C.

Expression of Intubation Tube

To the Editor:—I notice in *THE JOURNAL*, January 23, p. 314, a communication from Dr. Golden regarding the expression of O'Dwyer's tube. So far from being at all recent, this procedure lacks not very many years of being as old as intubation itself, and has, I think, been commonly used for the removal of the short French tubes. The longer and differently shaped O'Dwyer tube does not, however, lend itself so readily to the application of the method, and often requires the use of force which might result in traumatism of the larynx. The only serious case of "retention" of the

tube with which I have had experience was probably the result of a demonstration of this process. I hope, therefore, that other operators will not be led by Dr. Golden's letter to try the method except in case of a real emergency.

THOMAS B. COOLEY, Detroit.

A Micro-Organism which Apparently Has a Specific Relationship to Rocky Mountain Spotted Fever

To the Editor:—Through an oversight in calculating, the serum dilutions, to which I referred in my article with the above title in *THE JOURNAL*, January 30, page 379, were wrongly stated. The dilutions actually employed were twice those stated in the article, and should have been given as follows: 1 in 2, 1 in 20, 1 in 40, 1 in 80, 1 in 160, 1 in 240, 1 in 320 and 1 in 400. Therefore the complete agglutinating power of the immune serum was manifested in the dilution of 1 in 320 instead of 1 in 160.

H. T. RICKETTS, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

CONTAGION AND INFECTION

To the Editor:—What is the difference in meaning between "infectious" and "contagious"?

STUDENT.

ANSWER.—The confusion which exists regarding the significance of the words "infectious" and "contagious" is due in large part to the fact that they have grown into a usage varying somewhat from that which adhered to them originally. For the same reason the definitions found in the dictionaries are unsatisfactory; in fact, these are behind the times regarding these words. Good usage is the lexicographer's authority, and in case a certain usage has come to be universal among leading men, it may be considered as good usage.

The confusion may be cleared by holding fast to this statement: the term infectious is applied to all those diseases which are caused by parasites, particularly the microparasites, i. e., the bacteria, certain fungi and the protozoa. "Infection" is also used synonymously with "infectious disease." The term is not so commonly applied to conditions in which the body is invaded by the larger "macroparasites," as the intestinal worms, but it would not be improper to use it in such cases. When the surface of the body is the point of attack for such parasites as the pediculi, "infestation" is commonly used, but the distinction between "infection" and "infestation" is artificial to a certain extent. The term infectious, therefore, refers to the etiologic character of the disease.

To place the word "contagious" in its proper relationship to "infectious," we may say that infectious diseases may be divided into two classes: those which are contagious and those which are not. A contagious disease is one which is transmitted with greater or less ease from the patient to another person when the two come into direct or indirect contact. The word contagious therefore refers to a method of transmission which prevails among some infectious diseases. In earlier times the word "contagion" was used vaguely in referring to the unknown cause of a contagious disease, and the disease itself was also called a contagion; for example, a person was said to be suffering from a contagion. This use of the word does not prevail in modern literature. "Contagion" as now used refers to the act of transmission of an infectious disease by the medium of contact. It seems uncalled for, in relation to the question asked, to cite illustrations showing that there are all grades of contagiousness, or to enumerate the various vehicles of transmission which are utilized by the contagious infections.

METHOD OF DISGUIISING TASTE OF ARTIFICIAL CARLSBAD SALTS

To the Editor:—In adding a teaspoonful of artificial Carlsbad salts to a glassful of water as a laxative, what could be added to this mixture to make it palatable, or reasonably so?

GEORGE H. WERK, Cincinnati.

ANSWER.—The addition of a little sugar and lemon juice often effectually hides the disagreeable taste of the salts contained in artificial Carlsbad salts. Many patients, however, take such salts largely diluted with water in preference to any other method of administration. This applies to salty substances in general. While disagreeable in concentrated solution, they often become comparatively pleasant when sufficiently diluted.

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 30, 1909:

Greenleaf, H. S., major, granted leave of absence for one month.
Shook, J. R., capt., granted leave of absence for one month.
Koeper, C. D., capt., granted leave of absence for 14 days.
Clarke, J. T., major, granted an extension of 15 days to his leave of absence.
Reynolds, J. L., capt., granted leave of absence for two months.
Church, J. R., major, granted leave of absence for one month.
Winter, F. A., major, ordered to accompany troops to San Francisco.
Kendall, W. P., major, ordered to accompany troops from Fort Ethan Allen, Vt., to Fort Leavenworth, Kan., and return to station.
Davis, W. R., capt., granted leave of absence for 15 days.
Coffey, A. M., M. R. C., ordered from Fort Sam Houston, Texas, to Fort Sill, Okla., for temporary duty.
Jordan, E. H., M. R. C., granted leave of absence for two months, with permission to return to the United States via Europe.
Wertebaker, C. L., M. R. C., granted leave of absence for 10 days.
Stallman, G. J., dent.-surg., left Fort Sam Houston, Texas, for duty at Fort McIntosh, Texas.
Voorhies, H. G., dent.-surg., ordered to a month's duty at each of these posts: Fort Lincoln, N. D.; Fort Yellowstone, Wyo.; Fort William Henry Harrison, Mont.; Fort Missoula, Mont., and Fort Assiniboine, Mont.

Navy Changes

Changes in the Medical Corps, U. S. Navy, for the week ending Jan. 30, 1909.

Hart, G. G., acting asst.-surgeon, appointment dated Jan. 10, 1909, revoked.
Stokes, C. F., surgeon, ordered to report to the Surgeon General of the Navy for special temporary duty in connection with repair of hospital ships.
Huffman, O. V., asst.-surgeon, discharged from treatment at the Naval Medical School Hospital, Washington, D. C., granted sick leave for three months, and resignation accepted to take effect April 26, 1909.
May, H. A., P. A. surgeon, detached from duty with flotilla of light-house vessels, San Francisco, and ordered to the Pacific Fleet, sailing from San Francisco, Feb. 5.
Old, E. H. H., detached from the Naval Hospital, Norfolk, Va., and ordered to temporary duty at the Navy Yard, Washington, D. C., and to additional duty on board the *Mayflower*.
Thomas, G. J., acting asst.-surgeon, detached from the Naval Hospital, Boston, and ordered to the Naval Hospital, Norfolk, Va.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Jan. 27, 1909:

Young, G. B., surgeon, directed to attend the meeting of the Lake Michigan Water Commission to be held at Indiana Harbor, Ind., Jan. 23, 1909.
Cunningham, Hugh S., P. A. surgeon, directed to proceed to Nagasaki, Japan, upon special temporary duty.
Fricks, L. D., P. A. surgeon, leave of absence granted Jan. 8, 1909, for 7 days from Jan. 9, 1909, amended to read 5 days from Jan. 9, 1909.
Sweet, Ernest A., P. A. surgeon, granted 7 days' leave of absence from Dec. 25, 1908, under paragraph 189, Service Regulations.
Stiles, C. W., chief division of zoology, hygienic laboratory, granted three days' extension of annual leave on account of sickness from Jan. 12, 1909.
Blount, B. B., Acting-asst. surgeon, granted 30 days' leave of absence from Feb. 1, 1909.
Bussey, Joseph C., Acting-asst. surgeon, granted 7 days' leave of absence, under paragraph 191, Service Regulations.
Hamilton, H. J., Acting-asst. surgeon, granted 30 days' leave of absence from Jan. 27, 1909.
Moncure, J. A., Acting-asst. surgeon, granted 30 days' leave of absence from Feb. 18, 1909.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Jan. 29, 1909:

SMALLPOX—UNITED STATES

Alabama: Tuscaloosa, Dec. 1-31, 20 cases; Mobile, Jan. 21, 1 case.
Arkansas: Texarkana, Nov. 22-Jan. 11, 10 cases.
California: Los Angeles, Jan. 2-9, 2 cases; San Francisco, 2 cases.
Illinois: Brownlee, Oct. 25-Jan. 20, 75 cases; Centerville, July 1-Jan. 20, 50 cases; Chicago, Jan. 2-9, 1 case; Danville, Jan. 10-17, 1 case; Ladd, Nov. 1-30, 4 cases; Taylorville, Jan. 18, 40 cases.
Indiana: Evansville, Jan. 9-16, 2 cases; Lafayette, Jan. 11-18, 12 cases.
Kansas: Atchison, Jan. 9-16, 1 case; Kansas City, Jan. 2-16, 2 cases; Topeka, Dec. 3-10, 10 cases.
Kentucky: Covington, Jan. 9-16, 2 cases; Lawrenceburg, Oct. 1-18, 200 cases, 1 death; Lexington, Jan. 2-16, 9 cases.
Louisiana: Arcadia Parish, Dec. 20-Jan. 11, 30 cases; New Orleans, Jan. 2-16, 4 cases.
Maine: Van Buren, Jan. 9-16, 7 cases.
Michigan: Detroit, Jan. 9-16, 1 case.
Missouri: St. Louis, Jan. 9-16, 1 case.
Montana: Butte, Dec. 15-Jan. 12, 12 cases.
Nebraska: South Omaha, Jan. 9-16, 1 case.
North Carolina: Wilmington, Jan. 22, 1 case, imported.
Tennessee: Green County, to Jan. 22, 103 cases; Knoxville, Jan. 9-16, 1 case; Memphis, Jan. 18, 1 case, imported; Nashville, Jan. 9-16, 4 cases.

Texas: Cotulla, Jan. 25, present; Laredo, Jan. 25, present; San Antonio, Jan. 2-16, 21 cases.
Vermont: East Dover, Jan. 21, 10 cases; Newfane, Jan. 11, 3 cases; West Dunnerston, Jan. 21, 1 case.
Virginia: Lynchburg, Jan. 9-16, 1, imported.
Wisconsin: La Crosse, Jan. 9-16.

SMALLPOX—FOREIGN

Brazil: Bahia, Nov. 14-Dec. 5, 61 cases, 4 deaths.
Canada: Halifax, Nov. 2-9, 2 cases; Winnipeg, Jan. 4-11, 2 cases.
Egypt: Alexandria, Dec. 2-9, 1 death; Cairo, Dec. 15-23, 5 cases, 8 deaths.
India: Bombay, Dec. 15-22, 3 deaths.
Java: Batavia, Dec. 5-12, 4 cases, 1 death.
Mexico: Guadalajara, Jan. 1-7, 1 death; Monterey, Jan. 3-10, 1 death; Salina Cruz, Jan. 1-15, 5 deaths; Veracruz, Dec. 12-26, 2 cases, 2 deaths; Yucatan, Dec. 1-31, 1 case; Camp Mengel.
New Foundland: St. Johns, Jan. 9-16, 3 cases.
Peru: Lima, Dec. 19, 3 cases.
Porto Rico: Mayaguez, Dec. 26-Jan. 2, 1 case.
Portugal: Lisbon, Jan. 5-12, 3 cases.
Russia: St. Petersburg, Dec. 12-19, 8 cases, 2 deaths.
Spain: Valencia, Dec. 19-26, 1 case.
Turkey: Constantinople, Dec. 20-27, 6 deaths.

YELLOW FEVER

Barbados: Bridgetown and vicinity, Dec. 29-Jan. 10, 4 cases, 3 deaths.
Ecuador: Guayaquil, Dec. 12-19, 1 death.
Mexico: Mexcanu, Jan. 2-9, 1 case; Merida, 1 death.
Trinidad: Port of Spain: Jan. 20, 1 death.
Brazil: Bahia, Nov. 21-Dec. 5, 3 cases, 2 deaths.

CHOLERA

India: Bombay, Dec. 15-22, 23 deaths; Madras, Dec. 12-18, 3 deaths; Rangoon, Dec. 5-12, 1 death.
Russia: General, Nov. 15-Jan. 2, 2,976 cases, 1,208 deaths; St. Petersburg, Dec. 23-31, 114 cases, 43 deaths.
Straits Settlements: Singapore, Nov. 29-Dec. 5, 29 deaths.

PLAGUE

Brazil: Bahia, Nov. 14-Dec. 5, 12 cases 6 deaths.
China: Hongkong, Nov. 7-14, 1 case, 1 death.
Ecuador: Guayaquil, Dec. 12-19, 1 death; Milagro, present.
India: General, Dec. 5-12, 2,044 cases, 1,588 deaths; Bombay, Dec. 15-22, 4 deaths.
Peru: General, Dec. 4-17, 60 cases, 20 deaths; Lima, 9 cases, 3 deaths.
Straits Settlements: Singapore, Nov. 25-Dec. 5, 1 death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

MEDICAL LEGISLATION

Naval Medical Reserve Corps

Senator Gallagher has introduced amendments to the house bill (26394) of appropriations for the naval service for the coming year, to provide for a medical reserve corps for the Navy, similar to that provided for the Army, and also to provide for the reorganization of the hospital corps of the Navy. A bill to provide for the reorganization of the hospital corps was introduced into the last Congress and was endorsed by the Conference on Medical Legislation at its Chicago meeting in December, 1907. The proposed medical reserve corps for the Navy was discussed at the Conference on Medical Legislation recently held at Washington and was endorsed. The amendments proposed by Senator Gallagher are in the interest of efficiency of the medical department of the Navy, and should be adopted.

Proposed State Legislation

The following bills, which have been introduced into the various state legislatures, have been reported to the Bureau of Medical Legislation:

KANSAS

House Bill 301, to authorize an annual conference of state and local boards of health; House Bill 124, to provide for the regulation and inspection of hotels and public lodging houses and to vest the authority for its enforcement in the State Board of Health; S. B. 135, to amend the pure food law of 1907. This bill passed the Senate on January 22 and is now in the House.

MINNESOTA

H. F. 145, introduced by Dr. J. A. Gates, would regulate manufacture and sale of "patent" and proprietary medi-

cines. This bill would provide that each package of "patent or proprietary medicine" manufactured, sold or given away in the state shall contain the complete and correct formula on the outside wrapper and on the bottle or box. Any medicine containing more than a minimum quantity of morphin, heroin, cocain, chloral hydrate, belladonna, cotton-root, ergot or any other abortifacient, must show an additional poison label. The State Board of Health is to be authorized to analyze all preparations offered for sale in the state. A fine of from \$50 to \$500 and imprisonment for from thirty days to six months is to be a penalty for violation of the act. H. F. 169 would forbid objectionable or obscene advertising on the part of any person or corporation, either through newspapers, pamphlets, or by any other means. The production of any such advertisements is to be made prima facie evidence of the guilt of the persons advertising. H. F. 145, introduced by Dr. Gates, seeks to prevent the manufacture and sale of adulterated or misbranded drugs. The definition of adulteration and misbranding is as given in the national Food and Drugs Act.

NEBRASKA

S. F. 18 is an act to authorize the practice of osteopathy in Nebraska and to provide for a board of osteopath examiners. It is similar to former osteopath bills, except that it states specifically that licensed osteopaths shall have the right to report births and deaths the same as "physicians of schools of medicine," and that such reports shall be accepted by the officers of the departments to whom they are made. Evidently, those desiring osteopathic legislation have profited by their recent experience in New York. S. F. 66 is to provide for the registration of marriage statistics, and S. F. 116 for the equipment and maintenance of a State Board of Health bacteriologic laboratory. H. R. 94 is the same bill entered on the house calendar. H. F. 140 is for the sanitary regulation of bakeries, creameries, packing houses, slaughter houses, dairies, canneries, cheese factories, confectionery factories, restaurants, hotels, groceries and meat markets, placing the sanitary regulation of all buildings used for such purposes in the hands of the state food, drug and dairy commissioners. Section 4 of this bill will require that all doors and windows of all buildings in which food of any sort is handled be fitted with self-closing screen doors and with wire window screens. Section 6 will provide for cuspidors and regulates their use. Section 7 will forbid the use, as a living or sleeping room, of any place where food is prepared, served or sold. Section 8 will forbid the employment in any factory of any person afflicted with any infectious diseases. S. F. 142 is to regulate professional nursing, to authorize the State Board of Health to make such rules and regulations as may be necessary and to forbid any person to be known as a registered nurse without a certificate from the State Board of Health. H. R. 70 is a similar bill in the House.

NORTH DAKOTA

S. B. 8 is to regulate the sale of intoxicating liquors for medicinal, sacramental, scientific and mechanical purposes and to require a person who wishes to secure intoxicating liquors from a druggist, to present a written or printed prescription from a legally qualified physician.

NEW HAMPSHIRE

H. R. 23 is to provide for the equipment and furnishing of a state sanatorium for consumptives; H. B. 48, to forbid the manufacture and sale of any preparation containing cocain; H. B. 107, to provide for the cleanliness of receptacles used for the delivery of milk and cream for domestic purposes; H. B. 109, to specify the percentage of fat which must be in marketable milk, and H. B. 110, to regulate the manufacture and sale of ice cream.

OHIO

S. B. 3 is a bill to regulate the practice of optometry which is defined in about the same terms as in the Vermont law, mentioned last week. This bill is practically the same as all of the others introduced in the last two or three years in the various state legislatures, and is open to the same objections. It should not be allowed to become a law under any

circumstances, as it is class legislation, is contrary to the interests of the public, and places the state in the position of endorsing unqualified and incompetent individuals whom the public accepts as properly qualified. This movement for the passage of this law in all of the states is the result of a concerted effort which has been going on for the last two years. The bills and the efforts to secure their passage in the various state legislatures all emanate from a central source.

PENNSYLVANIA

The Committee on Inebriate Hospital of the Medical Society of the State of Pennsylvania has introduced a bill into the state legislature to provide for the erection of a state hospital for the detention and treatment of inebriates. A committee of six persons is to select the site and to erect such an institution; \$15,000 is to be appropriated for land and \$150,000 for buildings. A board of nine trustees is to be appointed after the erection of the building.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Seventh Month

General Subject for the Month, Normal and Pathologic Labor

First Weekly Meeting

ANATOMY

PELVIS

BONES: Ilium, wing, crest, spines, body; ischium, body, spine, tuberosity, ramus; pubis, body, spine, ramus; obturator foramen, sacrosciatic notch; sacrum, surfaces; coccyx.

LIGAMENTS: At symphysis pubis, sacro-iliac articulations, sacro-coccygeal articulations, sacro-sciatic ligaments, obturator membranes.

FALSE PELVIS: Boundaries, iliac crests, distances between spines, between crests.

TRUE PELVIS: Boundaries, form, portions. (a) Inlet, superior strait: shape, boundaries; diameters, conjugata vera, obstetric conjugate, diagonal conjugate, effect of Walcher position on each, external conjugate or Baudeloeque, transverse, oblique. (b) Obstetric strait: Boundaries; diameters, anteroposterior, bischiatic. (c) Outlet, inferior strait: Definition; diameters, anteroposterior, transverse. (d) Cavity: Depth, walls; diameters, anteroposterior, transverse.

INCLINATION OF PELVIS: Degree, variations, significance.

AXES OF PELVIS: Axis of inlet, of outlet, line of progression.

SOFT PARTS CONNECTED WITH BONY PELVIS.—(a)—In large pelvis: Muscles, iliacus, psoas; vessels; nerves. (b) In true pelvis: Piriformis, obturator internus, origin, relations, fasciae. Vessels and nerves. Bladder and rectum. (c) Pelvic floor and outlet: Levator ani, coccygeus, transversus perinei, sphincter ani, fasciae and attachments. Effect of soft part on diameters in each plane of pelvis.

FETUS

HEAD: Regions, occiput, vertex, sinciput; bones; sutures, sagittal, transverse, lambdoid; fontanelles; diameters, occipito-mental; occipito-frontal; suboccipito-bregmatic, biparietal, bitemporal; circumferences, maximum, minimum.

TRUNK: Comparative size; bisacromial and sterno-dorsal diameters.

HIPS AND EXTREMITIES: Diameters, bicristal, bitrochanteric, dorso-pubic.

PRESENTATION AND POSITION OF FETUS

ATTITUDE.—Definition, causes.

PRESENTATION.—Definition, normal and abnormal, longitudinal and transverse, variations during pregnancy and labor.

(1) Head: Frequency, causes; vertex, sinciput and brow, face. (2) Breech: Frequency, complete, knee, foot. (3) Trunk: Frequency, causes; shoulder, arms, etc.

POSITION.—Definition, points of fetus, of pelvis. (1) Vertex: L. O. A., L. O. T., L. O. P., R. O. P., R. O. T., R. O. A., (2) Face: Describe mento-positions (3) Breech: Sacro-positions.

DIAGNOSIS.—(a) Abdominal palpation, (b) vaginal touch, (c) auscultation.

Reference books for seventh month: Text-books of obstetrics by Edgar, Hirst, Jewett and Williams, and the American Text-Book of Obstetrics.

Marriages

RALPH S. CONE, M.D., to Miss Zoe Warner, both of Brooklyn, N. Y., recently.

JULIUS MICHAELIS, M.D., to Miss Ethel S. Thomas, both of Brooklyn, January 20.

JOHN WINSTER GREEN, M.D., Albion, Ind., to Miss Alice Westcott of Chicago, recently.

THOMAS H. WEIRICH, M.D., to Miss Sarah Duval, both of Wellsburg, W. Va., January 20.

A. ALDRIDGE MATTHEWS, M.D., Seattle, Wash., to Miss Eva Hopkins, at Seattle, January 27.

CARL H. WRIGHT, M.D., Yorktown, Ind., to Miss Josephine Barido, of Kane, Pa., January 26.

LUTHER S. MASON, M.D., Clover, Va., to Mrs. Annie Y. Cobb, of Danville, Va., January 20.

SIDNEY G. HANDS, M.D., Murdo, S. D., to Miss Edith Collins of Hopkinton, Iowa, January 15.

JAMES A. PEPPLES, M.D., Rising Sun, Md., to Miss Anna Hambleton, at Philadelphia, January 21.

WILLIAM HORACE RAINES, M.D., Dublin, Ga., to Miss Anna Estelle Mitchell, at Baltimore, January 20.

ARVIN OUCHTERLONY TAYLOR, M.D., Maysville, Ky., to Miss Alma Collins Martin, at Canton, Mo., January 12.

RIEVES ANDREW MANKER, M.D., to Miss Anna J. Krauss, both of New York City, at Jersey City, January 17.

BRISCOE BALDWIN RANSOM, JR., M.D., Maplewood, N. J., to Miss Daisie Yarbrough of Staunton, Va., February 4.

ROY MASON SWEENEY, M.D., Kellyville, Okla., to Miss Annette Ivy Buser of Lockwood, Mo., at St. Louis, January 21.

Deaths

Thomas Morton Hills, M.D. Yale Medical School, New Haven, Conn., 1863; a member of the American Medical Association and Association of New York and New England Railway Surgeons; surgeon of the Twenty-seventh Connecticut Volunteer Infantry during the Civil War; local surgeon for the New York and New England; New York, New Haven and Hartford, and Central Vermont railroads; proprietor of the Hills Hospital; died at his home in Willimantic, Conn., January 23, from pneumonia, aged 69.

Clement W. Jordan, M.D. Medical College of Alabama, Mobile, 1875; of West Point, Miss.; a member of the Mississippi State Medical Association; president of the local board of U. S. pension examiners; while making a professional call January 2, was fired on by a young planter, who mistook him for a robber. The shooting caused the horse of Dr. Jordan to rear and fall back, inflicting injuries which caused his death a short time later, aged 54.

Oliver Wolcott Gibbs, M.D. College of Physicians and Surgeons, New York City, 1845; of Boston; a member of the United States Sanitary Commission during the Civil War; Rumford professor at Harvard University from 1863 to 1897, and emeritus professor thereafter; a charter member and once president of the National Academy of Sciences; died in Newport, R. I., December 9, aged 86.

Andrew Howell Halberstadt, M.D. University of Pennsylvania, Philadelphia, 1853; a member of the American Medical Association, and founder of the Schuylkill County Medical Society; acting assistant surgeon in the army during the Civil War; one of the founders and visiting surgeon to the Pottsville (Pa.) Hospital and president of the local board of

health since its organization; died suddenly at his home January 19, from acute gastritis, aged 77.

Joseph Greenberry Wolfe, M.D. Rush Medical College, Chicago, 1890; a member of the American Medical Association; professor and head of the department of pediatrics in the Chicago College of Medicine and Surgery, and physician to the Frances E. Willard Hospital; died from nephritis in that institution, January 28, five days after an operation for tonsillectomy, aged 48.

John Randolph Smith, M.D. Willamette University, Salem, Ore., 1878; a member of the Washington State Medical Association; a veteran of the Civil War; mayor of Vancouver from 1881 to 1888; coroner of Clarke county for several terms; and contract surgeon U. S. Army at Vancouver Barracks; died at his home January 7, from uremia, aged 64.

John Osborne Skinner, M.D. University of Iowa, Keokuk, 1855; a member of the Iowa State Medical Society, and a charter member of the Polk County Medical Society; surgeon of the Tenth Iowa Infantry during the Civil War; and one of the oldest practitioners of Des Moines; died at his home January 15, aged 84.

Silas C. Dove, M.D. Cincinnati College of Medicine and Surgery, 1879; a member of the Indiana State Medical Association; surgeon during the Civil War; for four terms coroner of Hamilton county; a member of the county board of health; died at his home in Westfield, Ind., January 18, from heart disease, aged 70.

Charles Haven Francis, M.D. Northwestern University, Chicago, 1901; of Reno, Nev.; a member of the American Medical Association and delegate from Nevada at the Chicago session; secretary of the Washoe County Medical Society; died at his home in New Lenox, Ill., January 14, from tuberculosis, aged 33.

Robert W. Young, M.D. Jefferson Medical College, Philadelphia, 1875; a member of the American Medical Association, and for several terms president of the Lehigh County Medical Society; local surgeon at Slatington for the Lehigh Valley Railroad; died at his home January 22, from pneumonia, aged 61.

John Walter Gray, M.D. New York University, New York City, 1898; of Summit, N. J.; first lieutenant and assistant surgeon of the Third and Fourth New Jersey Infantry, U. S. V. during the Spanish-American War; died at the home of his sister in Summit, January 22, from heart disease, aged 32.

John Ernest Capdau, M.D. Tulane University, New Orleans, 1897; a member of the American Medical Association; once a member of the State Board of Health, and one of the brightest young practitioners of New Orleans; died suddenly at his home, January 17, from heart disease, aged 33.

Joseph William Winters, M.D. Jefferson Medical College, Philadelphia, 1873; a member of the health board of lower Merion township, near Ardmore, Pa., and secretary of the school board for the same district; died at his home in Marion Square, January 15, from diphtheria, aged 68.

John Roberts Graves Howell, M.D. Atlanta (Ga.) Medical College, 1890; a member of the Medical Association of the State of Alabama; a member of the State Medical Board, and president of the Houston County National Bank; died at his home in Dothan, January 16, aged 48.

Omer C. Bowen, M.D. Eclectic Medical Institute, Cincinnati, 1866; a member of the Michigan State Medical Society; formerly supervisor and village president, and twice mayor of Manistique, Mich.; died suddenly at his home from heart disease, January 20, aged 68.

Edwin Henry Mallory, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1882; Jefferson Medical College, Philadelphia, 1891; a member of the Iowa State Medical Society; died at his home in Linden, Iowa, from pernicious anemia, January 5, aged 52.

A. F. Richardson, M.D. Memphis (Tenn.) Hospital Medical College, 1903; a member of the Mississippi State Medical Association, and of the State Board of Health; was shot and killed in front of his drug store in Sturgis, Miss., Dec. 24, 1908, aged 33.

Herman George Nierman, M.D. University of Michigan, Ann Arbor, 1892; of Fort Wayne, Ind.; a member of the American Medical Association; died January 31, at Fort Wayne, from peritonitis, following an operation made five days before, aged 38.

Albert H. Bowers, M.D. University College of Medicine, Richmond, Va., 1906; of Gold Hill, N. C.; died in St. Leo's

Hospital, Greensboro, January 13, from malignant disease of the intestines, for which he underwent operation January 2, aged 28.

John W. Hayden, M.D. University of Iowa, Keokuk, 1866; a veteran of the Civil War; once a representative from Jefferson county in the Iowa legislature; died at his home in Fairfield, January 12, a day after a surgical operation, aged 69.

David Clarence Lewinthal, M.D. College of Physicians and Surgeons, New York City, 1889; a member of the American Medical Association and New York Academy of Medicine; died at his home in New York City, Dec. 14, 1908, aged 40.

Lowell H. Smith (license, Colo., 1890), for twenty-eight years a practitioner of Colorado; a veteran of the Civil War; from 1893 to 1897 treasurer of Boulder county; died at his home in Longmont, January 5, from diabetes, aged 76.

William Calvin James, M.D. Vanderbilt University, Nashville, Tenn., 1880; of Springfield, Mo.; a member of the Missouri State Medical Association; died in St. John's Hospital, Springfield, January 12, from nephritis, aged 50.

David Adams, M.D. Medical College of Georgia, Augusta, 1853; an honorary member of the Medical Society of the State of Alabama; died at his home in Pine Apple, Ala., December 20, aged 79.

Sheldon D. Lord, M.D. Bellevue Hospital Medical College, New York City, 1867; for several years health officer of Sackett's Harbor, N. Y.; died at the home of his son in that place, January 16, aged 67.

Samuel Ashmore, M.D. Cleveland Medical College, 1853; surgeon of the Fifteenth Kansas Volunteer Infantry throughout the Civil War; died at his home in North Topeka, Kan., January 19, aged 83.

A. P. Reeher, M.D. Homeopathic Hospital College, Cleveland, 1883; formerly a practitioner of Nanticoke, Pa.; died in Wilkes-Barre, January 6, from the effects of an overdose of morphin, aged 65.

Edith C. Boutin, M.D. Kansas City (Mo.) Homeopathic Medical College, 1895; died at her home in Coyle, Okla., recently, and was buried at her old home in Hampton, Iowa, January 24, aged 46.

Robert A. Holyoke, M.D. Rush Medical College, Chicago, 1885; of Lincoln, Neb.; and once coroner of Lancaster County; was found dead in his room in a hotel in Chicago, January 31.

Raoul LaRose, M.D. Laval University, Quebec, 1906; attending physician at the Montreal Home for Incurables; died January 5, at the Hôtel Dieu in that city, from typhoid fever, aged 27.

Donald Gillespie, M.D. University of the Victoria College, Cobourg, Ont., 1860; died at his home in Cannington, Ont., Dec. 22, 1908, from heart disease, aged 70.

William Launcelot Downing, M.D. Rush Medical College, Chicago, 1885; of Minneapolis, Minn.; died in a sanitarium at Kenilworth, Ill., recently, aged 45.

John H. W. Pomeroy, M.D. University of Wooster, Cleveland, Ohio, 1888; died at his home in Kipton, Ohio, January 20, from appendicitis, aged 44.

Henry O. Smith, M.D. Bennett Medical College, Chicago, 1883; of DeKalb, Ill.; died at the home of his sister in Yorkville, Ill., January 12, aged 56.

John Shotwell Townsend, M.D. Hahnemann Medical College, Philadelphia, 1874; died at his home in Baltimore, January 15, from heart disease, aged 59.

George P. Heithaus, M.D. St. Louis University, 1908; resident physician at the St. Louis Obstetric Dispensary; died January 16, in St. Louis.

Alfred J. Bigelow, M.D. University of Buffalo, N. Y., 1851; died at his home in New York City, January 22, from senile debility, aged 73.

Michael C. Moran, M.D. Rush Medical College, Chicago, 1882; died at his home in Chicago, January 24, from heart disease, aged 56.

Russell Hulbert, M.D. Yale Medical School, New Haven, 1898; of Middletown, Conn.; died in Hartford, Conn., Oct. 23, 1908, aged 33.

Calvin B. Scott (license, Iowa, 1886), for more than thirty years a practitioner of Fontanelle, Iowa; died January 19, aged 74.

Green Berry May, M.D. Tulane University, New Orleans, 1848; died at his home in Security, La., Nov. 26, 1908, aged 62.

Orson Dorcelia Benson, M.D. Rush Medical College, Chicago, 1879; of Omaha; died in a hospital in that city, January 15.

Chauncey Pond (license, Iowa, 1886), died at his home in Sioux Rapids, Iowa, July 19, 1908, from myelitis, aged 70.

J. W. Good, M.D. Columbus (Ohio) Medical College, 1880; of Hooper, Neb.; died in Kansas City, Mo., January 14.

Willard Osman Ruggles, M.D. Boston University, 1880; died at his home in Mattapan, Boston, January 10, aged 53.

Cyrus Campbell (license, Kan., 1904), was burned to death at his home in Cherryvale, Kan., January 15, aged 74.

Pardon Cargill, M.D. Eclectic Medical Institute, Cincinnati, 1865; died recently at his home in Dixon, Cal.

Society Proceedings

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Third Annual Meeting, held at Albany, Jan. 26-27, 1909

The President, ARTHUR G. ROOT, Albany, in the Chair

The list of officers elected for the ensuing year was published in THE JOURNAL, Jan. 30, 1909, page 391.

Reports of the Secretary and the Treasurer

Dr. Wisner R. Townsend, New York, gave a detailed account of the number of members in good standing, the number dropped for non-payment of dues, the number of deaths and resignations, etc., as compared with the previous year, and read the honor list of county societies whose membership list is fully paid up for 1908.

The treasurer's report shows that the income for the year exceeded the expenditure by \$642.46. This result, he stated, was accomplished by economies that in many instances were not to the advantage of the organization.

Approve Council Standard for Proprietaries

The society approved the resolutions unanimously passed at the session of the American Medical Association in Chicago, 1908, to the effect that advertisements of medical preparations should be restricted to those approved by the Council on Pharmacy and Chemistry, and that all state associations which now do, or hereafter may publish or control medical journals, be requested to restrict their advertisements to such approved preparations.

Report of the Committee on Publication

This committee announced the resignation of Dr. J. P. Warbasse, editor of the state journal, and the appointment of Dr. A. T. Bristow as acting editor. A detailed report of the expense of publishing the journal and directory was also given.

The carrying into effect of the resolutions in regard to the advertisement of medical preparations as adopted by the American Medical Association, it was stated, will entail a loss of about \$3,000 per annum to the journal. However, the committee heartily endorses these resolutions.

Report of Committee on Public Health

This committee, Drs. John L. Heffron, J. S. Billings, Jr., and F. R. Ford made the following report: A letter was sent to the secretary of every county medical society asking on what subjects pertaining to public health the society had held discussions. Replies were received from all the societies. No questions pertaining to public health had been discussed in ten societies. The subjects considered in the others were as follows: Milk supply and milk inspection, by six societies; rabies, by one society; water supply, by one society; tuberculosis, by three societies; sewage disposal, by one society; typhoid fever, by two societies; national health officer, by two societies; smallpox, by two societies; vaccination, by two societies; county bacteriologic laboratory, by two societies. It was safe to say that no new subject had ever emanated from a public health board which had not first been brought before the people by the medical profession. It is the primary duty of members of the medical profession to consider carefully every subject that has a bearing

on the human welfare, to arrive at a definite opinion, and then to impress that opinion on the citizens of the community in which the society is doing its work. Medical societies should be vigilant in seeing that the health ordinances in their force in making public sentiment sufficiently strong to influence can be exerted by the county societies. The remuneration of county medical officers is so absurdly insufficient that it sometimes attracts only those who are idle or politically inclined and who are not the best men for the purpose. There is a long roster of men who are heroically as well as scientifically serving their communities without any pay practically, while there are other men who draw big salaries and are of little use to the state department. The inauguration of county bacteriologic laboratories, which was first recommended by this committee, has been taken advantage of by many counties and well-equipped laboratories have been established. If the incoming national administration fails to establish a national department of health the public health committees of the state medical societies should add their force in making public sentiment sufficiently strong to force this movement through.

Report of the Committee on Legislation

This committee reported that during the 1908 session of the legislature 200 measures were introduced relating to medicine and public health and sanitation. About 50 of these passed both houses, received the governor's signature, and became laws.

Report of the Counsel

MR. JAMES TAYLOR LEWIS: During the past year several states have adopted malpractice defense along the lines on which this state society has been conducting it. The only verdict ever recorded against a member of the society since the existence of organized malpractice defense, was reversed and set aside by the unanimous decision of the Court of Appeals. Up to the present time, actions for alleged malpractice suits have been defended in thirty-nine counties of the state. There is evidence of increase in the abandonment of cases brought as soon as the state society appears by attorney for the defendant. This is perhaps the best proof of the effect which organized defense is creating in the minds of the public. Requests have come asking for the prosecution of illegal practitioners of medicine in several counties, and on one occasion I was requested to and did attend a coroner's inquest and conducted the medical examination before the coroner. These matters were brought up in connection with the discussion of the question as to whether it was not appropriate that the state society should extend its usefulness beyond the defense of malpractice actions. The percentage of blackmailing malpractice cases has decreased and the percentage of *bona fide* malpractice actions has increased. In 1906 there were 30 new cases, in 1907 22 new cases, and in 1908 21 new cases. The amount involved in malpractice actions since the organization of the defense is over \$500,000. There are twenty-three cases not yet determined.

President's Address: The Physician and Lawmaking

DR. ARTHUR G. ROOT, Albany: To those who make a study of the statutes annually produced by the State of New York, the most cursory examination is convincing that in their preparation there is a painful lack of the intimate knowledge necessary to make them effective. The medical profession has steadily applied itself to the study of hygiene and to bringing before the legislature each year enactments for the purpose of promoting a proper understanding and application of the rules that pertain to this important subject. Proper sanitation is vastly more important to the public weal than the protection of property rights. Technical knowledge of the subject is absolutely necessary to the proper construction of a statute that will accomplish its object and be effective in protecting the life of the individual. No one but a physician would have been capable of constructing the laws relating to the quarantine of contagious diseases that have robbed these diseases of much of their terror. No class of men other than physicians would have been so inspired *pro bono publico* as to sacrifice time and effort to the extent necessary to place

them in the body of their laws and bring about their rigid enforcement. It is the object of the Medical Society of the State of New York that every individual who practices the learned and responsible profession of medicine should be properly equipped. No breadth of understanding or extent of technical knowledge can be too great for the physician who is properly equipped and who has the lives of others entrusted to his care. Recognizing this, the standard of requirements for those wishing to practice medicine has been steadily raised. The ridiculous claim that each school or system of medicine should have its separate examinations has been definitely and finally disallowed, and the public is thus permanently protected. The medical profession has preserved its own high standard and has protected the individual from useless and dangerous experimentation. In the domain of lawmaking the physician is the only natural and logical authority for subjects which affect life and health.

The Serum Treatment of Cerebrospinal Meningitis

DR. L. EMMETT HOLT, New York: The serum used was obtained from a horse which had been immunized by injections derived from many strains of meningococcus. After making the spinal puncture, as much fluid is withdrawn as will come away readily. The head of the patient should be lowered and his hips raised. It requires some experience to acquire the technic of puncture and injection. The dosage has not yet been measured and in giving the serum it was administered in cubic centimeters and not in units. The initial dose is 30 c.c. During the epidemic of 1905, the board of health reported 2,700 cases with a mortality of 73.5 per cent. This treatment has no value in cases not due to the meningococcus. Of 59 patients under 2 years of age, treated by the meningococcus serum, 34 recovered and 25 died, a mortality of 42.4 per cent. In 88, between the ages of 2 and 5, the mortality was 28.4 per cent.; in 104, between the ages of 5 and 10 years, the mortality was 15.4 per cent.; in 149, between 10 and 20 years, the mortality was 27.5 per cent.; in 123 patients 20 years and over the mortality was 39 per cent. The results according to the time of injection show that of those injected during the first three days under 2 years the mortality was 9 per cent.; of those from 2 to 5 years old, the mortality was 22.8 per cent.; of those between the ages of 5 and 10 the mortality was 12.3; of those between the ages of 10 and 20 the mortality was 24; and of those over 20 the mortality was 44.5 per cent. Those injected from the fourth to the seventh day showed a mortality of 21.1 per cent: for those under 2 years, 32.5 per cent., for those from 2 to 5 years, 16.2 per cent. for those between 5 and 10 years, 24 per cent. for those from 10 to 20 years, 37 per cent. for those 20 years or over. Of those injected after the seventh day the mortality was 71.4 for those under 2 years of age, 27 per cent. for those from 2 to 5 years, 22 per cent. for those from 5 to 10 years, 36.6 per cent. for those from 10 to 20 years, and 36.6 per cent. for those over 20 years or over.

Scarlatina

DR. H. A. FAIRBAIRN, Brooklyn: It is very difficult to define this disease and there are no diagnostic symptoms. The streptococcus plays an important part as an etiologic factor; the severity of the case is dependent on this and it is the basis of most of the complications. The differential leucocytic count is valuable as indicating the presence of pus in the absence of fever. The important factor in the treatment is the treatment of the skin and the toxemia. The use of antitoxin thus far has been directed against streptococcus poison. As the desquamation scales produce the disease long after the streptococcus has disappeared these should be used to obtain a vaccine or antitoxin. The streptococcus has not been found in them after a period of ninety days. Quarantine can be abandoned after the first thorough desquamation. As one attack generally protects the individual against others, this serum might be employed as an anti-scarlatina serum. The amount of blood required for such purpose in an individual case is small. It could frequently be obtained from a parent or other relative of the patient. Its use could be attended with no risk and might be of great advantage.

Physical Training of Children

DR. W. F. SEAES, Binghamton: Our school children are stoop-shouldered and show poor physical development. A better physical condition would promote a better mental development. The condition of the students of West Point and Annapolis show what it is possible to do. Four years of military training should be a requirement for citizenship. The care of the individual is a fundamental part of military training.

Glandular (Pfeiffer's) Fever

DR. W. B. GARLOCK, Little Falls: This is a sporadic or epidemic infectious disease, usually occurring in children between the ages of 2 and 10 years; it may occur in adults. Usually there is no general glandular involvement. Generally the liver and spleen are tender. There seems to be no tendency for the glands to break down. Laboratory tests have given negative results. There is a difference of opinion as to how the disease gains entrance, whether through the air passages or through the intestines. The prognosis is good and the only complications noticed have been glandular suppuration and congestion of the retina. These are rare. The treatment is symptomatic.

DISCUSSION

DR. LEONARD W. BACON, New Haven, Conn.: A case which occurred in my experience was that of a student and it looked like a case of Hodgkin's disease. The source of infection seemed to be from the intestinal tract. There was a toxic adenitis.

Improvement in the Technic of Cataract Extraction

DR. LUCIEN HOWE, Buffalo: I wish to call attention to the fixation of the globe and to a pair of forceps for accomplishing this. In holding the conjunctiva with forceps in order to steady the globe, tears of the conjunctiva often occur and the globe rolls upward. This accident may occur even when the conjunctiva is caught with double forceps in two places. In order to obviate this difficulty, a pair of double forceps has been so arranged as to grasp, not only the conjunctiva, but also the tendon of the external and internal rectus. In this way the globe is firmly held, which facilitates the puncture and counter puncture and the completion of the usual Graefe incision. In relation to the method of extracting the lens in cases in which the lens presents properly in the wound, but can not be easily expelled, a pair of delicate forceps has been constructed with which to engage the lens, and to assist in drawing it forward. These forceps have been used a sufficient number of times to prove their usefulness.

Meller's Operation for the Removal of the Tear Sac: With Report of Cases

DR. A. EDWARD DAVIS, New York: A thorough knowledge of the anatomy of the lachrymal sac and the neighboring structures and a proper understanding of the relative position of the internal palpebral ligament and the anterior lachrymal crest are essential in performing a successful extirpation of the tear sac. As Dr. H. Knapp says: "Extirpation of the sac is as radical an operation as an amputation and should not be resorted to unless other methods of treatment have failed." Meller's operation is performed under cocaine in a relatively short time, from thirty to forty minutes, and as a rule is bloodless. The incision is made to the nasal side and above the internal canthus and follows the anterior lachrymal crest about two centimeters; care being taken not to wound the cornea and thus cause infection. The incision is continued through the superficial fascia, the orbicular muscles and the deep fascia; this exposes the sac which can then be freed by cutting the lachrymal ducts with the scissors. After the sac is removed a few drops of cocaine are instilled into the wound which is packed temporarily to stop all bleeding. The sac should be stretched over a probe to make sure of its complete removal. If any portion of the sac wall remains it should be dissected away before the wound is closed. The lachrymonasal duct should next be curetted by a small sharp chalazion curette, thus removing all particles of mucous membrane which might cause a continuance of the secretion. In closing the wound, particular care should be taken that the

wound edges are accurately approximated and the sutures not too tightly drawn. The operation for the removal of the tear sac is indicated first by chronic inflammation of the sac which can not be cured otherwise, or has resisted treatment for a long period in such conditions as: 1. Large mucocele, chronic lachrymal fistula, excepting congenital capillary fistula. 2. Chronic stricture of the nasal duct. 3. Chronic catarrhal dacryocystitis with repeated attacks of acute phlegmonous inflammation and ulcers of the cornea complicating this disease. 4. When an operation on the ball of the eye, as excision of a cataract paracentesis, etc., is to be made on the affected side. The local anesthesia is administered by means of a hypodermic syringe with a capacity of 1 cm. A 1 per cent. solution of cocain and adrenalin chlorid, 1 to 1,000, in the proportion of about 8 to 9 parts cocain to 1 or 2 parts adrenalin. One-third of this solution is injected under the skin in the line of the intended wound; one-third deep into the periosteum above the top of the lachrymal sac and one-third at the lower end of the sac deep in near the periosteum. The operation may be begun two or three minutes after the injections have been made. In the five cases reported there was healing by primary union with excellent results. In no case was there any hemorrhage to speak of.

Ophthalmia Neonatorum

DR. JULIEN A. GEHRUNG, New York: The instillation of a 2 per cent. solution of silver nitrate into the eye is too irritating. I employ a modification of Crede's method when the head is born, and then later, when the child is washed and dressed, the eyes are cleansed with 1 per cent. silver nitrate solution and this is followed by salt solution or a solution of adrenalin-chlorid, 1 to 1,500. The latter acts as an anesthetic and neutralizes the action of the silver.

(To be continued)

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Regular Meeting, held Jan. 6, 1909.

The President, DR. JAMES M. TYSON, in the Chair

The Roentgen Rays as an Aid in Diagnosis of Gastric Carcinoma

DR. GEORGE E. PFAHLER presented this paper, which was illustrated with about fifty lantern slides, showing carcinomata throughout the alimentary canal. These were made from twenty-nine different patients in whom carcinoma was demonstrated by means of the rays. This diagnosis was confirmed in most cases by autopsy, operation, or by the subsequent clinical course. The examinations were made both by means of the fluoroscope and the radiograph. The patient was given bismuth food, which was followed into and through the stomach. By watching its course and the subsequent peristaltic waves the evidences of carcinoma became apparent. He drew the following conclusions:

1. Gastric carcinoma is demonstrable when it will change the course of food through the stomach, when it will decrease the volume, or interfere with the peristaltic action; fix or displace the stomach; cause an indentation in the stomach wall or modify the rate of evacuation of the gastric contents.
2. With this aid, a diagnosis can be made earlier than has heretofore been possible.
3. As a rule, it is a tedious and expensive study when done thoroughly, and therefore each case first should be studied well clinically.
4. Great caution or thoroughness will have to be observed, or errors will be made and this valuable method of investigation will fall into discredit.

DISCUSSION

DR. JAMES M. ANDERS: If it is possible by this method to recognize gastric carcinoma at an earlier stage than heretofore, an important step has been taken. My experience with exploratory operations in early gastric carcinoma is that in all the cases the disease was found at operation to be well

advanced; in the majority of cases it was too far advanced to offer hope of a cure by extirpation. I agree with Dr. Pfahler on the importance of giving to the Roentgenologists all available clinical data regarding the patients sent for examination. In one of my cases recently Dr. Pfahler was able to satisfy himself of the presence of a small mass before it could be felt.

DR. JUDSON DALAND: The recognition by the x-ray of esophageal tumors has been particularly brilliant. It is a surprising experience, after having looked at the question from the ordinary clinical standpoint to witness the behavior of the esophagus when it is the seat of stricture, and to note the kefir and bi-smuth trickling through the stricture and slowly dropping into the stomach, I believe we have in the radiograph and the fluoroscope valuable additional aid in the diagnosis of carcinomatous conditions in the alimentary tract. The negative value of these means, in my experience, also has been of great importance. This study by means of the x-ray is one that can not be adequately done except by an experienced man. It requires not only a trained eye, but an active cerebrum. It seems to me that this work must ever remain in the hands of the specialist.

DR. JOSEPH SAILER: My experience is that when carcinoma of the stomach can be diagnosed by the ordinary clinical means it is too late to operate.

DR. HENRY K. PANCOAST: I should like to emphasize particularly the importance of the radiographer being supplied with all possible data regarding the patient to be examined.

DR. CHARLES LESTER LEONARD: I believe that early examination of the stomach by the x-ray will lead to recognition of the disease when operation is of value.

DR. GEORGE E. PFAHLER: Of course, we will not be able to diagnose all carcinomas of the stomach; but I believe that in most cases with patience we can demonstrate carcinoma of the stomach before it is palpable, and that it is a step in advance of any of our clinical methods to-day.

CHICAGO MEDICAL SOCIETY

Regular Meeting, held Jan. 20, 1909

The President, DR. ALFRED C. COTTON, in the Chair

SYMPOSIUM ON SYPHILIS

The Value of the Spirochete in the Diagnosis of Syphilis, Especially the Primary Lesion

DR. B. C. CONNOR: During the past eight months I have examined 150 cases, including chancres, condylomata, mucous patches, papules, and inguinal glands. In no single instance when the organism was demonstrated has the subsequent course of the case shown the diagnosis to be wrong. So confident am I in regard to its specificity that I have formulated the following conclusions: 1. The spirochete is the true cause of syphilis, and its presence is equivalent to the diagnosis of syphilis, but its absence does not rule out syphilis. 2. By means of this method the spirochete may be demonstrated in all primary and secondary lesions of syphilis if the search is persistent. 3. The greatest value of Schaudinn's discovery is that it enables us to make a positive diagnosis from the primary lesion. 4. All primary lesions show the spirochete pallida. 5. The diagnosis should be made from the primary lesion. After the spirochetes have been demonstrated in the primary lesion, only harm can be done in waiting for other manifestations before beginning treatment.

The Serodiagnosis of Syphilis and Its Clinical Value

DR. WILLIAM J. BUTLER: The following results were obtained by me with the serum reaction in 150 cases of syphilis and suspected syphilis: 1. Of 10 cases in the primary stage, 100 per cent. gave a positive reaction. 2. Of 36 cases in the secondary stage, 95 per cent. gave a positive reaction. 3. Of 31 cases in the tertiary stage, 94 per cent. gave a positive reaction. 4. Of 16 latent cases, 56 per cent. gave a positive reaction. 5. Of 55 cases of visceral and parasyphilis, 76 per cent. gave a positive reaction. The large percentage of positive reactions obtained in the primary, secondary and ter-

tiary stages, with manifestations, is competent evidence of its clinical value as a diagnostic measure. A positive reaction in a patient presenting suspicious symptoms is decisive for, and a negative reaction carries considerable weight against syphilis as the etiologic factor. Patients under vigorous specific treatment will not only show a disappearance of symptoms, but ultimately in practically every case of the reaction. With this latter point one is constantly impressed in cases that are followed sufficiently long. In latent cases the patients will show quite uniformly between 50 and 60 per cent. of positive reactions. Among the cases of syphilis of internal organs examined by me were hepatic cirrhosis, aortic aneurism, specific arteritis, myocarditis, etc. Eighty per cent. of aortic aneurisms are said to have their origin in a specific meso-aortitis, and a considerable proportion of the diseases of the arteries are dependent on syphilis. The large percentage of positive reactions (from 95 to 98 per cent.) obtained in patients with syphilitic manifestations and the disappearance of the symptoms and ultimately of the reaction under rigid specific treatment, admit of the deduction that a positive reaction indicates active syphilis. A further support of this view is the coincidence that the number of cases that give the reaction corresponds with the frequency of internal luetic changes in syphilis coming to autopsy. Recognizing that a healing of external manifestations of syphilis does not carry any assurance as to internal conditions in this disease, and remembering that a positive serum reaction indicates active syphilis, its clinical value becomes strongly evident. By it we are placed in a position to know whether the syphilis is only apparently or really in abeyance. It is an indispensable index for specific treatment. The serum reaction is found in congenital as well as in acquired syphilis, and with equal constancy. It is obtained with the milk of syphilitic mothers as well as with the serum. The serum is the more satisfactory to work with.

The Cutaneous Symptoms of Syphilis

DR. JAMES NEVINS HYDE: I wish to content myself with depicting four pictures representing the external manifestations of the disease in types that were somewhat uncommon and rather unfamiliar to the average practitioner. The first picture includes a sketch of two classes of subjects, both exhibiting trivial symptoms of the disease in its early periods. In the one class these insignificant features may never be followed by grave symptoms; in the second class are included those subjects who subsequently suffer from severe ravages of the disease. The second picture includes the subjects of the disease who, after infection, displayed one vivid exanthem, and afterward exhibited no symptoms of the disorder. The third picture includes the cases in which there is abundant evidence that the symptoms commonly presented during what has been generally called the "secondary" period of the disease may be seen ten, twenty, and even more years after the date of infection. The fourth picture is made to include the rare, oddly developed and confusing symptoms of the disease, where errors in diagnosis have been so frequently committed. I cite instances in which the bite of an animal supposed to have eaten previously poisoned flesh has been followed by symptoms declared to be septicemic; and cases in which an erroneous diagnosis has been made of leprosy, elephantiasis Arabum, pigmented sarcoma, etc. The practitioner is encouraged with the assurance that a correct diagnosis can usually be reached after careful, scrupulous and exhaustive research.

Congenital Syphilis

DR. I. A. ABT: A considerable number of syphilitic infants, apparently well at birth, die of marasmus before the end of the first year. Babies with congenital syphilis show a high mortality. No primary lesions occur. For this reason it is assumed that the disease soon takes on the character of a severe general infection, and for the same reason it is thought that the virus of the disease must diffuse itself rapidly. Levaditi, Verse and others found it possible to demonstrate spirochete regularly and in large numbers in the organs of syphilitic infants. Many experienced clinicians doubt the

occurrence of congenital syphilis years after birth without the occurrence of early symptoms, believing that the early symptoms were overlooked. Congenital syphilis is almost at once a general disease, and for this reason the lymph glands do not play the part that they do in acquired syphilis. The lymph nodes are seldom involved to any great extent, but the visceral organs in congenital syphilis are very soon involved. Hochsinger makes the point that circumscribed gummata are far less frequent than diffuse infiltration of organs in congenital syphilis. The skin lesions occur for the most part later than those of the internal organs. Children are not born with this skin condition. It usually occurs at the fourth week, or later, and does not occur after the first year. It is observed that the skin at the site of this lesion is smooth and glossy, due to the tension produced by infiltration of the underlying skin. The second form of skin lesion characteristic of congenital lues is pemphigus. The most frequent and characteristic localization is the palms and soles, though other parts of the body may be involved. Congenital syphilis attacks the mucous membrane of the nose, gastrointestinal tract, the liver, the nervous system, kidney, testicle, spleen, the thymus, etc. Particularly characteristic for the syphilitic processes of the new born infant is the fact that the changes in the various tissues and organs proceed from the vascular degenerations. This is borne out by all the histologic and statistical studies.

Parasyphilitic Affections

DR. ARCHIBALD CHURCH: The parasyphilitic affections may be classified as follows: (1) Tabes; (2) parietic dementia, whether it occurs in adults as the result of acquired syphilis, or the juvenile form due to hereditary syphilis; (3) intermediate, combined lesions of the cord resulting in degeneration in some cases; (4) the condition of the brain in children, the result of inherited syphilis, which in some may be looked on as an agenesis, in others as a reduction of vitality, and in others as a tendency to degenerations. Fournier has insisted that locomotor ataxia is the result of syphilis. Erb gave great support to this contention, and some argument has been brought forward in relation to the subject of general paresis, so that we will find ourselves in good company if we take the position that without syphilis a man can not have locomotor ataxia or parietic dementia. In regard to parietic dementia, a crucial test was instituted by Kraft-Ebing, who took thirteen cases of general paresis in which there was neither evidence nor a history of syphilis, and inoculated all thirteen of these men with the juice of fresh and approved chancre. In no case was there any effect from the inoculation, and the only explanation of their immunity was the demonstrated fact of a preceding syphilis. Practically every one is agreed that nine out of ten cases of locomotor ataxia are postsyphilitic. Undoubtedly, with improved technic in reaction tests, cases of locomotor ataxia and parietic dementia will give evidence of antecedent syphilis. Without syphilis we can not have either locomotor ataxia or general paresis, according to English and French authorities.

Therapeutics of Syphilis

DR. WILLIAM L. BAUM: The treatment of syphilis should begin as soon as the diagnosis is definitely established by the finding of the spirochete in the primary sore or by other unmistakable evidences of the disease. In the treatment of syphilis there is but one remedy whose action we can consider in the way of a specific, and that is mercury. There are three methods of its administration: (1) The endermatic, (2) the hypodermatic, (3) the internal, or by the mouth. There is no single one plan of treatment which can be followed as a routine method to meet the requirements of every case of syphilis throughout its course; so that all of these methods are of value in particular cases under the proper conditions. I have arrived at the following conclusions: 1. The inunction method if treatment yields by far the best results. 2. The hypodermatic or intramuscular injection method is often valuable when a quick or overwhelming effect is to be produced, especially in cases where the special senses are threatened, and in certain severe nervous or old cutaneous

lesions; always to replace this method when the desired immediate result is produced. 3. The mixed treatment is, at times, of great value, especially in cases in which the glandular involvement is the most prominent factor. 4. The doses of iodids in eye lesions, in cerebral cases, and in ulcerations threatening destruction of the vocal cords, etc., should be large in the beginning and rapidly increased to the point of physiologic tolerance. 5. Every patient should be instructed to take a short course of treatment in the spring and fall of every year, as long as he lives, and that this, by keeping the vessels reasonably soft, will extend the expectation of life by many years.

Discussion on Syphilis

DR. MAXIMILIAN HERZOG: I agree with Dr. Corbus that it is important to find the spirochete in the primary and secondary lesions of syphilis as a means of early and certain diagnosis. Schaudinn, in 70 patients with primary and secondary syphilis, who had little or no treatment, found the spirochete 70 times in stained preparations. In 50 cases of the same type Sobernheim found spirochete in every case. Mulzer found the organism 20 times in 22 syphilitic cases, and Geraghty in 30 cases found the spirochete 27 times. I have examined material from about 30 cases, and of this number 7 were negative. These cases were either recognized as soft chancre, and were used as controls, or later on were found to be instances of soft chancres. Of the remaining 23 I found spirochetes in 18 primary and secondary lesions, and those patients in whom I did not find spirochetes had been under mercurial treatment for some time.

DR. F. G. HARRIS: While several methods have been brought forward to simplify reaction, none of them is so reliable as the reaction enunciated by Wassermann. The longer the infection has taken place, all things being equal, the stronger is this test. It is probable that the reaction which is present in the primary stage of syphilis depends on the dissemination of the infection. If chancre be taken early, a negative reaction is obtained. The presence of spirochetes remains the only reliable method for demonstrating the initial lesion. In the tertiary stage in from 90 to 96 per cent. of the cases there is a positive reaction; and in the parasymphilitic cases the same thing occurs. A patient with acute syphilitic endocarditis was treated at the Cook County Hospital in whom the diagnosis was made by the Wassermann test. The treatment of syphilis should be controlled by the Wassermann test.

DR. W. T. MEFFORD: Syphilis is more active and virulent in some people than in others. In some people the serum reaction will disappear after from 75 to 85 injections have been given, while in others it will take from 130 to 150 injections to do this. As to milk, I am not sure as to whether it would transmit syphilis to a non-syphilitic child or not.

DR. WILLIAM ALLEN PUSEY: Syphilis, as a rule, is not capricious and unusual in its course, but manifests itself in a certain matter-of-fact way. In rare instances, the so-called tertiary lesions occur in the secondary period. Occasionally there are some manifestations which may be called secondary, occurring late in the disease, but thanks to clinical medicine, ordinary syphilis pursues a normal, chronologic sequential course. The cutaneous syphilides are among our most satisfactory and reliable standbys.

DR. O. S. ORMSBY: Several years ago I saw a man who supposedly had carcinoma of the penis, and in considering amputation the questions arose as to whether he had had any venereal disease previously, and whether amputation should be performed, or the patient treated with the x-ray. The lesion was found to be a typical instance of gummatous syphilid, and iodid of potash relieved him. Syphilis may occur at any age. It is a disorder which occurs in any person, no matter what the social position in life. In this country from 5 to 10 per cent. of extragenital chancres are observed on the lips, the tonsils, and other areas. Recently, in the practice of Dr. Hyde, I saw two patients with extragenital multiple lesions on the lip.

DR. DANIEL R. BROWER: There would not be so much tabes and parietic dementia if a longer time were given to the treat-

ment of syphilis in the beginning. A great majority of patients have inadequate primary treatment. Among certain peoples parietic dementia and tabes are practically unknown, while in this country their frequency is recognized.

DR. L. E. SCHMIDT: Metchnikoff mentions a series of cases in which he inoculated monkeys with syphilitic virus and at the same time inoculated a series of patients. In one of these series the prophylactic treatment was favorable. This treatment consisted of calomel ointment, ten parts of calomel and twenty parts of lanolin. Knowing the cause of syphilis and watching the patients he had inoculated, in practically all instances in which the calomel ointment was used, within six hours after its use, the monkeys which were inoculated showed no signs of syphilis. With these results in mind, I think it advisable to consider the prophylactic treatment in every-day use.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Public Meeting, Witherspoon Hall, Dec. 15, 1908

The President, DR. ALBERT M. EATON, in the Chair

THE PUBLIC HEALTH AND THE MEDICAL PROFESSION

Vaccination as a Protection to the Public

DR. JOSEPH McFARLAND: There are three questions that an analysis of the question, "Why Does Not Vaccination Protect Against Smallpox?" includes:

1. Why is it that there is no country in the world, no matter how thoroughly vaccinated, in which some cases of smallpox and some deaths from smallpox do not occur?

2. Why is it that there are so few epidemics of smallpox in which a certain number of vaccinated people are not made ill and some do not die?

3. Why is it, in some places, Philadelphia being one, that a greater number of vaccinated individuals than unvaccinated may die?

These questions form the stock-in-trade of those who through ignorance, personal prejudice, hope of personal profit or willful blindness are led to antagonize the well-known virtues of this measure of preventive medicine. The operation of vaccination itself is of no significance, nor is the sore arm. If the child does not suffer from the disease no good is done. Failure to understand this is the source of much that is said against the subject. The disease leaves behind it a peculiar condition of the body, a changed physiologic condition which is known to us technically as immunity. Immunity, like every other subject in biology and physiology, is subject to change and variation. As in measles and typhoid, some individuals do suffer from several attacks, so after years most persons can be vaccinated again, or if this is not done, may contract smallpox. A few persons develop relapses one after another in typhoid, because they have no immunity; so a few are not benefited by vaccination. There is no country so well vaccinated that some deaths from smallpox do not occur, because some vaccinations miscarry; some individuals are not made immune; some have outlived the immunity. These are all susceptible, and may be infected if smallpox can reach them. The danger of its reaching them is infinitely less if the susceptible are few in number. There are few epidemics in which some vaccinated individuals do not contract the disease. Certainly, those who though vaccinated have outlived the immunity are in much the same condition as those never vaccinated. In some places, more vaccinated than unvaccinated persons die. This is inevitable when the number of vaccinated greatly exceeds the unvaccinated, but the vaccination of the majority is inefficient. I appeal to every fair-minded individual to endorse the absolute necessity of more strict and thorough enforcement of vaccination so that the number of the unprotected shall be reduced to a minimum.

Vaccination as a Protection to the Public

PROF. EDWIN J. HOUSTON: It seems almost incredible in view of the overwhelming evidence from practically all parts of the world of the advantages to be derived from successful vaccination as a preventive against smallpox, that intelligent people should be found who are willing not only to take

the risk for themselves of failing to insure this protection, but even to assume the grave responsibility of urging others to follow in their footsteps. I can not but think that much of this opposition comes from ignorance, not only of the danger existing in smallpox and the loathsomeness of the disease, but also of the almost certainty with which the disease can be contracted by exposure when not protected by vaccination. With other scientific men, I claim the right to read data and make my own conclusions, and I certainly am of the opinion that there never was a discovery so great as Jenner's, and never so great a boon given to the world as that which has practically stamped out of existence the most dreadful scourge the world has ever known. Before the publication in 1798 of Jenner's great discovery of vaccination, smallpox attacked from 85 to 95 people out of every 100, and of those attacked an immense number died. In Germany, where vaccination is compulsory, an epidemic of smallpox is unknown. During 1897, there were but five deaths from smallpox in the entire German empire. The population of Japan is nearly 47,000,000, and yet the number of deaths from smallpox was but four in 1901 and six in 1903. The stringent compulsory vaccination laws of Japan require a first vaccination within the first ten months of life, a second at the sixth year and a third at the tenth year. The United States, by its sanitary regulations, has practically stamped out smallpox in the Philippines. It can be shown that practically all the eminent physicians of this country are believers in vaccination, the disbelievers being few in number and found mainly outside of scientific circles. Moreover, the statement that the great medical schools of the world do not believe in vaccination is not borne out by facts. In 1907, the faculties of the medical colleges in Philadelphia passed resolutions affirming their belief in the efficacy of vaccination and urging that the present vaccination laws be left alone. Some time ago the president of one of the cotton mills in the South, in which I am interested, asked me if I could do anything to set the operatives right on the subject of smallpox. I wrote a circular, putting into plain English, the facts. Following this, instead of being opposed to vaccination, not only the people in that mill, but in the adjoining mills, insisted on being vaccinated. Dr. William M. Welch states that in every epidemic of smallpox occurring in Philadelphia within the past thirty years, instances have been observed of whole families being removed to the Municipal Hospital on account of the outbreak of the disease in these families; that in all such instances the unvaccinated children often died, while those who were vaccinated remained perfectly exempt, although living, eating and sleeping in the infected atmosphere for several weeks. The present vaccination laws in Pennsylvania are not compulsory. They, however, restrict the educational privileges of the schools to children who are vaccinated. Except in a few districts, the law appears to be satisfactory to the people. The antivaccinationists should carefully consider the grave responsibility they are assuming. In Philadelphia, in the epidemic of 1901-1908, about 5,000 persons were attacked, of whom 500 died, but not one had been successfully vaccinated within ten years.

Medical Legislation as a Benefit to the Public

DR. GEORGE W. WAGONER, President of the Medical Society of the State of Pennsylvania: I shall consider some features of the Proposed Act to Regulate the Practice of Medicine, and in so doing I shall strive to eliminate that bias of mind which the training and associations of thirty years can not help but create. The "whereas" introducing the bill contains the only reasons that can be legally given for regulation and the justification of the restrictions sought to be thrown about the practice of medicine:

WHEREAS, The safety of the public is endangered by incompetent physicians and surgeons and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians and surgeons be allowed to practice their profession.

If the safety of the public is endangered by incompetent physicians and surgeons, then the state has an undoubted right, and it is its duty, by the exercise of its police power,

to regulate and control every individual and thing that may bring danger and harm to its citizens. But the regulations must bear equally on all persons. The next questions to be answered are: What constitutes the practice of medicine and who shall be practiced as practitioners? The following definition of the practice of medicine taken from the New York Medical Practice Act, but slightly modified, seems to me to be definite, fair and comprehensive, and I would favor its incorporation in our act:

"A person practices medicine within the meaning of this act who holds himself or herself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, whether with or without drugs or medicines and whether with or without fee therefor, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity or physical condition."

The most difficult phase of the problem is: How shall the state prove the qualifications of individuals desiring to practice medicine? If fundamental, undisputed, medical knowledge renders an individual safe in his practice on the public, why should the state concern itself with non-essential sectarian knowledge? I am of the opinion that the state's duty ends with the examination concerning facts, and it becomes inquisitorial and offensive when it undertakes to gauge opinions and theories according to an arbitrary standard. I would, therefore, exclude from the state's examination every subject which has given rise to sectarianism in medicine. If physicians are equal before the law, why should we demand that those who shall compose the Board of Examiners shall be tagged with certain names to indicate their peculiar faith, and that not more than a certain number bearing a similar tag shall be members of it? The proposed act provides for the creation of a body known as the medical council, the actual duties of which properly belong to an authoritative board of examiners. If sectarianism is in fact and by inference excluded from the medical act, there can be no just reason for the creation of a medical council. It should therefore be stricken from a general law that ignores the existence of classes. I know the arguments of political expediency that are urged in justification of its creation, but the ideal law is not founded on expediency, but on equal rights to all, special privileges to none. There are a number of other things that the act must provide for—preliminary education, scientific education, whether or not there shall be reciprocity with other states or a state, revocation of licenses for cause, and all the details of procedure necessary to make it consistent, legal and practical. As these questions are in no way modified by sectarianism there should be no difficulty in drafting general provisions to cover each point. I maintain that an act regulating the practice of medicine must be clearly in the interest of the public health. It must be general legislation, in no sense must it be class legislation. The principles underlying such an Act must be true, and founded on the facts of modern experience and culture.

A Layman's View of Medical Legislation

SAMUEL SCOVILLE, JR., Esq.: I represent to-night, not the doctors but the doctored, not the prominent physicians but the patient patients, the laymen. We laymen have personal and important reasons for our interest in this great movement: It is our appendices that are being removed right and left—mostly from the right; it is our stomachs, livers and lungs and other internal bric-a-brac that suffer; it is we who have la grippe and bubonic plague and beriberi. The subject interests us laymen as a matter of life and death. The sick man is vitally, wholly, unreservedly and unconditionally interested in the standard of efficiency in the medical profession. Regarding the bill itself, as I understand the situation now, an embryo doctor has his choice of entering the profession in three ways: He may pass the allopathic examination, he may pass the homeopathic examination, and if he fails in both of these he has an unfailing hope in the eclectic examination. If only those passing the eclectic examination would practice eclecticisms, whatever that may be, the evil would not be so great; but, instantly, on passing that examination they are turned out to prey on the defenseless community as allopathists, homeopaths, or any other kind

of "ists." The same situation used to confront us lawyers in New York in connection with our bar examinations. There are two practical suggestions which I have to make in regard to securing the passage of this proposed legislation: 1. We can not commence work too soon. 2. The bill has to pass through an all powerful and all ignorant institution known as a committee. I have frequently seen bills which I have fathered come out of the committee torture chamber so disheveled and dismembered and differently clothed that it was with great difficulty that I recognized my own offspring. In this bill, if we are able to preserve the spinal column intact, we should be more than satisfied. Let us all work together to have the divine science of healing represented by masters, not by apprentices.

Science and the Public Health

DR. D. J. MCCARTHY: The methods of investigation which have been used by the medical profession and which have been subject to criticism are not the growth of a year or of ten years. They do not depend entirely on the question of animal experimentation or on any one single method, but on a variety of methods of investigation and on scientific training requiring years of study here and abroad. Antivivisectionists state that tuberculosis can be controlled by proper nutrition, but they forget that the whole basis for the knowledge of the control of this disease depends on animal experimentation. To determine whether or not any great pain is produced on the animals in experimentation any one may go into the laboratory of any large hospital and observe these investigations. The question of the necessity of this experimental work in the teaching of students is a matter which ought to be left to the medical profession. Practically all the investigation of diseases of the infectious group, affections of the cardiac system, and of the gastrointestinal tract depends on this line of experimentation. Experimentation on the brain in lower animals showed that the various parts of the brain control different parts of the body, and made it possible for the surgeon to remove the diseased area and so preserve a man's mental power. Such facts can be well used by the medical profession in enlightening the lay public on methods of scientific thought.

Experiments on Animals

PROF. HENRY H. DONALDSON: My conviction is that for the progress of biology and medicine experiments on animals are essential. In the discussion on the right to experiment with animals and on the alleged uselessness of this practice, investigators have been obliged to defend themselves against attacks from a small but active group in the community which claims that such experimentation is both cruel and unnecessary, and therefore should be prohibited, or against a somewhat larger group who have demanded regulations in order to prevent supposed abuses. It should be remembered that the investigators who conduct this work form a selected group and represent one of the three learned professions, every one of which professions has always had the responsibility of dealing with life and death. The members of this group claim the privilege of judging for themselves on matters touching their special work. In the end they will be judged by what they can return to the community. These returns consist already not only in various means of protection from disease or for its immediate cure, but in the prolongation and betterment of life and a clearer understanding of both the ethical and economic value of good health. In the arguments presented for legislation on this matter a strong emotional bias is often shown. We recognize that experimental work is a serious affair and to be considered in all soberness, since in the last instance it involves the power of life and death. Experiments of this sort are carried on by trained investigators, medical men and workers in biology, for definite purposes and with definite ends in view. The class of irresponsible persons for whose actions restraint is sought has not been shown to exist in connection with our laboratories. Should the evidence for deliberate cruelty appear to be good I would ask those who are forming their opinion to inquire whether the case is not outside of ex-

perimental work and a case for which the present laws protecting animals from cruelty are adequate. In the laboratories where experimental work is carried on, anesthetics are given to animals as they would be to human beings. Operations in which anesthetics can not be used are very rare and still more rarely are they practiced. I have never seen any. Those in charge of laboratories feel strongly the responsibility which this sort of work entails. It is only after a well-grounded public opinion has been formed that experimental medicine can be relieved from these attacks which threaten its advance, an advance which can be shown to increase the welfare and efficiency of the people as a whole.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: Topeka, Feb. 9. Sec., Dr. R. A. Light, Chanute.
WYOMING: Cheyenne, Feb. 10-12. Sec., Dr. S. B. Miller, Laramie.

Medical Education and Nostrums, Fourth Letter

The following is the fourth of a series of letters issued jointly by the Council on Medical Education and the Committee on Medical Teaching of the Council on Pharmacy and Chemistry. With it was sent a copy of the pamphlet, "The Propaganda for Reform in Proprietary Medicines."

To Medical Teachers:—This letter treats of the immediate causes of the prescribing of nostrums.

The underlying causes of nostrum-prescribing are our own indifference, our indolence and our ignorance. The direct cause, however, is the exploitation of this indifference by the nostrum-maker and his agents; the systematic duping of physicians by every trick and device which promises success. We can not guard ourselves too strongly against these practices. The exposures published in the Pharmacology columns of THE JOURNAL of the American Medical Association furnish liberal illustrations for this text. A reprint of some of these has been mailed to you. However, there are many apparently more innocent, but none the less vicious, devices, such as the following:

(a) Laudatory notices of nostrums are obtained from well-known men and these are caused to appear in journals and even in text-books.

(b) Real, or pretended, clinical and pharmacologic researches are reported in which the results are fabricated, or twisted to suit the needs of the nostrum-maker in exploiting his preparations.

(c) Bona-fide reports of investigations are distorted into praise of that which is virtually condemned.

(d) Men of absolutely no professional standing are employed to write, or sign, laudatory reports.

(e) Favorable comments are given the widest publicity while unfavorable ones are carefully suppressed.

(f) Meaningless jumbles of words are often used to make the physician believe that the manufacturer employs scientific methods.

(g) Hypotheses and discarded theories of eminent men are often used in such a way as to make it appear that the savant approves of the nostrum-makers' methods.

(h) Every field of medical research is watched jealously and the nostrum-maker is ever alert to launch some nostrum to meet a popular demand resulting from every discovery long before the foremost investigators have advanced beyond the merest hypothesis.

These and similar distortions of the truth do an incalculable amount of harm. They not only promulgate and perpetuate what is false, but they also hinder the acceptance of what is true, in that they cast suspicion even on honest research. This can only be prevented by a universal sentiment, a sentiment so strong as to ostracise those who resort to such practices. The medical teachers have it in their power to create and foster such a sentiment.

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of the State of Montana, reports the written examination held at Helena, Oct. 6, 1908. The number of subjects examined in was 10; total number of questions asked,

50; percentage required to pass, 75. The total number of candidates examined was 50, of whom 30 passed and 20 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of California.....	(1906)	78.6	
George Washington University.....	(1906)	80.2	
Jenner Medical College.....	(1902)	75.1	
College of Physicians and Surgeons, Chicago, (1903) 78.4; (1905) 79; (1906) 76.7; (1908) 81.2.			
Northwestern Univ. Medical School.....	(1903) 75.2; (1904) 76.8, 81.2	82.7	
American College of Medicine and Surgery.....	(1905)	77.6	
American Medical Missionary College.....	(1907)	87	
Rush Medical College.....	(1906)	77.6	
Indiana University.....	(1908)	83.5	
Louisville and Hospital Medical College.....	(1908)	76.8	
University of Michigan (1899) 76.6; (1906) 81.2; (1908) 76.8		75	
University of Minnesota.....	(1907) 76.9, 81.9; (1908) 79.2	77.7, 88.4	
Barnes Medical College.....	(1908)	75.3	
St. Louis University.....	(1905) 76.1; (1908) 75.3	80.6	
Creighton Medical College.....	(1908)	79.4	
Jefferson Medical College.....	(1908)	81.2	
University of Pennsylvania.....	(1905)		
McGill University, Quebec.....	(1907) 79.3; (1908) 81.2		

College	Year Grad.	Per Cent.
Bennett Coll. of Eclectic Medicine and Surgery.....	(1879)	60
Rush Medical College.....	(1883) 37.3; (1886) 62.1	
Chicago Homeopathic Medical College.....	(1897)	67.5
Illinois Medical College.....	(1900)	62.8
College of Physicians and Surgeons, Kansas City.....	(1902)	63.5
Harvard Medical School.....	(1907)	72.2
University of Michigan.....	(1895) 58; (1907) 72.3; (1908) 69.7	
Hamline University.....	(1903)	52
Kansas City Medical College.....	(1889)	61.7
Barnes Medical College.....	(1896)	62.6
Marion-Sims College of Medicine.....	(1895)	63.9
University Medical College, Kansas City.....	(1905)	71.8
Creighton Medical College.....	(1908)	73.9
Columbia University, Coll. of P. and S., New York.....	(1894)	63.8
University of Pennsylvania.....	(1894)	67
University of Toronto, Ontario.....	(1908)	73.7
University of Turin, Italy.....	(1899)	63.3

New Jersey 1908 Reciprocity Report

College	Year Grad.	Reciprocity with
Yale Medical School.....	(1908)	New York
Howard University, Washington.....	(1904)	New York
Columbian University, Washington.....	(1905)	New York
Hahnemann Med. Coll., Chicago, (1902) New York; (1906) Illinois		
Kentucky School of Med.....	(1906)	New York
College of P. and S., Baltimore.....	(1897)	New York
Johns Hopkins Med. School.....	(1906)	New York
Baltimore Med. Coll.....	(1902) Maine; (1897) (1908)	New York
College of P. and S., Boston.....	(1906)	Maine
Boston University.....	(1908)	Maine
Harvard Medical School.....	(1894) Maine; (1907) New York	
University of Michigan.....	(1893)	New York
Woman's Med. Coll., Kansas City.....	(1897)	Ohio
Columbia Univ., Coll. of P. and S., New York, (1896) (1901) 4, 1904 (2, 1905) (3, 1906) (4, 1907)		New York
Cornell Univer. Med. Coll.....	(1904) (1905) (3, 1907)	New York
Long Island Coll. Hosp., (1897) (1903) (1904).		
..... (1905) (1906) (1907) (1908)		New York
New York Homeo. Med. Coll. and Hosp.....	(2, 1906)	New York
Woman's Med. Coll. of the New York Infirmary for Women and Children.....	(1895)	New York
Syracuse University.....	(1908)	New York
Eclectic Med. Coll. of New York.....	(1906)	New York
Bellevue Hosp. Med. Coll.....	(1894) (1898) (1899)	New York
New York Med. Coll. and Hosp. for Women.....	(1897) (1901) (1908)	New York
University and Bellevue Hosp. Med. Coll.....	(3, 1907) (3, 1908)	New York
New York University Med. Coll.....	(2, 1897)	New York
Albany Med. Coll.....	(1902)	New York
Woman's Med. Coll. of Pennsylvania.....	(1907)	New York
University of Pennsylvania.....	(1899) (1903)	New York
Hahnemann Med. Coll. and Hosp., Philadelphia, (1895) Colorado; (1896) Delaware.....		Maine
Jefferson Med. Coll.....	(1902)	Illinois
University of Vermont.....	(1893) New York; (1906)	Vermont
McGill University, Quebec, Canada.....	(1904)	New York
Queen's University, Ontario.....	(1903)	New York
Royal Hungarian University, Budapest.....	(1894)	New York
University of Berlin, Germany.....	(1904)	New York
University of Naples, Italy.....	(1898) (1903)	New York
University of Turin, Italy.....	(1900)	New York
University of Moscow, Russia.....	(1897)	New York

Oklahoma November Report

Dr. Frank P. Davis, secretary of the State Board of Medical Examiners, reports the written examination held at Muskogee, November 10-13, 1908. The number of subjects examined in was 14; total number of questions asked, 140; percentage required to pass, 70. The total number of candidates examined was 44, of whom 34 passed and 10 failed. One candidate took an incomplete examination. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Coll. of P. and S.....	(1901)	87	
Illinois Med. Coll.....	(1908)	87	
Northwestern Univ. Med. Sci. ol.....	(1907)	87	
Chicago Coll. of Med. and Surg.....	(1908)	84	

College	Year Grad.	Per Cent.
College of P. and S., Chicago.....		
Hahnemann Med. Coll. and Hosp.....		
Eclectic Med. University, Kansas City.....		
Kansas Med. Coll.....		
Kentucky School of Med.....	(1907) 82; (1908) 81	
University of Louisville.....	(1907)	81
Louisville Med. Coll.....	(1907)	80
Louisville and Hospital Med. Coll.....	(1908)	78, 84
Hospital Coll. of Med., Louisville.....	(1900)	87
Washington University of St. Louis.....	(1907)	81
University Med. Coll., Kansas City.....	(1908)	91
Barnes Med. Coll.....	(1905)	82
Albany Med. Coll.....	(1907)	87
Cleveland Homeopathic Med. Coll.....	(1907)	85
Jefferson Med. Coll.....	(1907)	83
University of Nashville.....	(1908)	90
Vanderbilt University.....	(1908)	83, 91
Meharry Med. Coll.....	(1907) 78; (1908) 81, 81, 82	
University of West Tennessee.....	(1908)	71
University of Vermont.....	(1905)	89
Medical Coll. of Virginia.....	(1902) 82; (1906)	90

College	Year Grad.	Per Cent.
University of Arkansas.....	(1908)	72*
Atlanta Coll. of P. and S.....	(1902)	81*
Chicago Coll. of Med. and Surg.....	(1908)	78*
Dearborn Med. Coll.....	(1904)	78*
University of Louisville.....	(1897) 74; * (1908)	67
Barnes Med. Coll.....	(1904)	74*
Cleveland Homeopathic Med. Coll.....	(1906)	80*
Memphis Hospital Med. Coll.....	(1908)	67
Tennessee Med. Coll.....	(1900)	58

* Fell below the minimum of 50 per cent. on one or more branches.

Delaware December Report

Dr. Henry W. Briggs, secretary of the Medical Council of Delaware, reports the written examination held at Dover, December 8-10, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. One candidate was admitted by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland.....	(1907)	76.6	
Jefferson Med. Coll.....	(1900)	93.1	
University of the South.....	(1899)	83.5	
University of Toronto, Ontario.....	(1908)	84.1	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Pennsylvania.....	(1898)	New Jersey

Pennsylvania December Reports

The Medical Council of Pennsylvania reports the written examinations held by the several boards at Philadelphia and Harrisburg, Dec. 1-4, 1908. The number of subjects examined in was 7; percentage required to pass, 75.

At the examination held by the State Medical Board, the total number of candidates examined was 80, of whom 69 passed and 11 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
Denver and Gross Coll. of Med.....	(1907)	1	
Howard University, Washington.....	(1907) (4, 1908)	5	
Rush Med. Coll.....	(1905)	1	
University of Louisville.....	(1908)	5	
Louisville Med. Coll.....	(1907)	1	
University of Maryland.....	(1908)	2	
Johns Hopkins Med. School.....	(1906)	4	
College of P. and S., Baltimore.....	(1906) (3, 1908)	2	
Baltimore Med. Coll.....	(1903) (1908)	1	
Detroit Coll. of Med.....	(1906)	1	
St. Louis Coll. of P. and S.....	(1904)	1	
Leonard Med. School.....	(1907)	2	
University and Bellevue Hosp. Med. Coll.....	(1907)	1	
College of P. and S., New York.....	(1894)	3	
Woman's Med. Coll. of Pennsylvania.....	(1904) (2, 1907)	3	
University of Pennsylvania, (1886) (1902) (3, 1906) (3, 1908) 8.		5.	
Western Pennsylvania Med. Coll., (1899) (1907) (3, 1908) 5.		1	
Medico-Chirurgical Coll., Philadelphia, (1899) (1904) (1906)		1	
..... (1906) (2, 1908) 5.		1	
Temple Coll. of Med.....	(1907)	10	
Jefferson Med. Coll.....	(2, 1906) (8, 1908)	2	
University of the South.....	(1901)	1	
University of Toronto, Ontario.....	(1901) (1908)	1	
McGill University, Canada.....	(1906)	1	
Queen's University, Kingston, Ontario.....	(1908)	1	
University of Rome, Italy.....	(1904)	1	
University of Naples, Italy.....	(1906)	1	
University of Vienna, Austria.....	(1903)	1	

College	Year Grad.	Per Cent.
Howard University, Washington.....	(1907)	1
National Med. Univ., Chicago.....	(1906)	1
Louisville Med. Coll.....	(1908)	1
University of Maryland.....	(1903) (1905)	4
Western Pennsylvania Med. Coll., .. (2, 1907) (2, 1908)		1
University of the South.....	(1903)	1
University of Naples, Italy.....	(1905)	1

At the examination held by the Homeopathic Medical Society, the total number of candidates examined was 4, all of whom passed. The following colleges were represented:

of "ists." The same situation used in the New York in connection with the Eclectic Medical Society, the candidates examined was 7, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
New York Homeo. Med. Coll.	(1897)	1	
Cleveland Homeopathic Med. Coll.	(1908)	1	
Hahnemann Med. Coll., Philadelphia	(1907)	2	
College	PASSED	Year Grad.	Total No. Examined
University of Louisville	(1907)	1	
Maryland Med. Coll.	(1907)	2	
Baltimore University	(1904)	1	
Western Pennsylvania Med. Coll.	(1908)	1	
University of the South	(1904)	1	
University of Naples, Italy	(1899)	1	

Texas November Report

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Dallas, November 10-12, 1908. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 60, of whom 59 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas	(1898) 92.7; (1901)	83	
George Washington Univ.	(1908)	93.5	
Howard University, Washington	(1908)	87.2	
Medical Coll. of Georgia	(1907)	83.1	
Atlanta Coll. of P. and S.	(1901)	81	
Georgia Coll. of Ecl. Med. and Surg.	(1905)	84.2	
University of Iowa	(1895)	90.2	
Eclectic Med. University, Kansas City	(1905)	75	
Louisville and Hosp. Med. Coll.	(1908)	78.2	
Louisville Med. Coll.	(1889) 85.2; (1893)	84.3, 90.1	
Kentucky School of Med.	(1894) 75; (1908)	78.2	
University of Louisville	(1908)	85.3, 93.8	
Tulane University of Louisiana	(1891) 86.3; (1899)	92.7	
Maryland Med. Coll., (1901) 80.8; (1905) 80.7; (1907)	79.2; (1908) 84.4		
College of P. and S., Baltimore	(1897)	95.2	
University of Maryland	(1892)	89	
University of Michigan	(1904)	87.4	
University of Minnesota	(1908)	85.5	
Barnes Med. Coll.	(1896) 83.5; (1904)	82.1	
Marion Sims Coll. of Med.	(1896)	95	
Eclectic Med. Institute, Cincinnati	(1872)	99.6	
Pulte Med. Coll.	(1877)	75.7	
Med. Coll. of Ohio	(1889)	82	
Starling Med. Coll.	(1898)	95.7	
Cleveland Homeo. Med. Coll.	(1895)	90.4	
Memphis Hosp. Med. Coll., (1889) 75; (1891) 75; (1898) 91; (1900) 86.5; (1906) 75		91	
University of Nashville, (1868) 91.6; (1896) 75; (1897) 89.5; (1907) 76.5			
Chattanooga Med. Coll.	(1905)	75.1	
University of the South, (1900) 76.4; (1901) 95.2; (1904) 84.3; (1907) 83.2; (1908) 81.4			
Vanderbilt University	(1889) 91.5; (1894) 92; (1900)	85.6	
McHerry Med. Coll.	(1908)	81.3	
University of Tennessee	(1898)	90.5	
Baylor University	(1905) 76.5; (1906) 92.5; (1907)	84.2	
National Med. School, Mexico City	(1905)	86.5	

FAILED

Kansas City Med. Coll.	(1903)	73.8
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TEXAS RECIPROCITY REPORT

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, sends the following report of reciprocal licenses issued by that board since September 1, 1903:

College	Year Grad.	Reciprocity with
Medical College of Alabama	(1902)	Virginia
Columbian University, Washington, D. C.	(1900)	Dist. Colum.
Rush Med. Coll.	(1907)	Missouri
Northwestern Univ. Med. School	(1902)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1906)	Illinois
University of Iowa	(1901)	Iowa
Louisville and Hosp. Med. Coll.	(1906)	Kentucky
University of Louisville	(1906)	Kentucky
College of P. and S., Baltimore	(1896)	Illinois
Detroit College of Med.	(1905)	Michigan
University of Michigan	(1908)	Michigan
Washington University, St. Louis	(1907)	Illinois
St. Louis University	(1906)	Missouri
Missouri Med. Coll.	(1886) Illinois; (1888)	Missouri
St. Louis Coll. of P. and S.	(1908)	Missouri
Barnes Med. Coll.	(1908)	Missouri
Creighton Med. Coll.	(1896)	Illinois
Cleveland Coll. of P. and S.	(1903)	Illinois
Hahnemann Med. Coll. of Philadelphia	(1906)	Ohio
Vanderbilt University	(1882)	Maryland
University of the South	(1903)	Kentucky
University of Nashville	(1860)	Virginia
University of Tennessee	(1905)	Illinois
University of Virginia	(1900)	Kentucky
Medical Coll. of Virginia	(1904)	Virginia
Wisconsin Coll. of P. and S.	(1897)	Wisconsin

Book Notices

THE INFLUENCE OF ALCOHOL AND OTHER DRUGS ON FATIGUE. By W. H. R. Rivers, M.D., F.R.C.P., Fellow of St. John's College, Cambridge. Pp. 136. Cloth. Price, \$1.70. London: Edward Arnold, 1908. New York: Longmans, Green & Co., 1908.

While much work has been done to determine the influence of drugs, and especially of alcohol, on muscular and mental fatigue, the psychic element in the tests has been allowed to play an unduly large part in the results. This factor Dr. Rivers attempted to eliminate in the series of experiments which form the subject of his book. In determining the capacity for muscular work the ergograph was used and a set of six ergograms taken, the interval between successive series being equal—usually an hour. The subject was not permitted to see either the weight raised or the tracing recorded. In giving the drugs, control mixtures were administered so that the subject did not know on what days the drug was taken—a precaution which, while evidently of great importance, has been taken by no other workers in this field unless by Sobieranski and Schumberg. The fatigue of attention was studied by the McDougal method, which consists in having the subject hit a succession of dots which pass before him through a slit, accuracy of aim determining the degree of mental alertness. The multiplication and typewriting tests for mental fatigue were also used. The results of these studies are interesting and instructive; the most striking being the conclusions reached concerning the effect of alcohol on fatigue. In general, it may be said that Rivers' experiments seem to prove that alcohol in very moderate quantities has no appreciable effect on the capacity for muscular work, while it lessens the capacity for mental work, the different results obtained by other workers being, he believes, "due to defects of experimental method." In other words "the natural conclusion is that the results of previous workers have been due, not to the physiologic effects of the alcohol, but to the presence of certain factors, and especially interest and sensory stimulation, the influence of which can only be excluded by the use of a control." Incidentally it would seem that Dr. Rivers' method in his alcohol experiments, while admirable from the standpoint of pure science, has practically a very limited applicability. The psychic elements of "interest" and "sensory stimulation" are always present when ordinary alcoholic beverages are taken in the ordinary way. The work done by Dr. Rivers, however, is none the less valuable—it is in fact more valuable. By it he demonstrates the actual part played by the psychic element in the administration of a drug about which there is so great a difference of opinion.

THE FUNCTIONAL INERTIA OF LIVING MATTER. By David Fraser Harris, M.B., C.M., M.D., B.Sc. (Lond.), F.R.S.E., Lecturer on Physiology and Normal Histology in the University of St. Andrews. Cloth. Pp. 136. Price \$2.00. Philadelphia: P. Blakiston's Son & Co., 1908.

That living matter possesses the fundamental property of irritability has long been generally known; that this property is in itself sufficient to explain all vital processes is not so universally believed. It is probable that the physiologic counterpart of irritability, or affectability, as it has been called—that is, non-affectability—plays as important a part on the biologic stage as does irritability itself. This, at least—in fact, more than this—is Dr. Harris' thesis, for to his mind non-affectability is not a mere negation; it is as much a positive, fundamental property of protoplasm as is affectability itself. For this reason Dr. Harris prefers the term "functional inertia" to the less comprehensive terms, "insusceptibility" or "non-affectability."

To apply a physical analogy to a biologic fact: Inertia in physics is, according to Newton's postulate, that property of matter by virtue of which a body at rest remains at rest and a body in motion continues moving in a straight line unless acted on by external forces. It is because of its "inertia of rest" that the heavy wagon, when pushed, responds at first but slowly to the impulse given; when once started, however, its "inertia of motion"—momentum—keeps it moving even

after the application of the impelling force has ceased. So, according to Dr. Harris, does living protoplasm, by virtue of its "functional inertia," offer, as it were, resistance to external stimuli and, having finally responded to such stimuli it, by its "inertia of motion," continues to exhibit functional activity after the stimuli *per se* have ceased to exist. The converse is equally true; for, as the wagon, once set in motion, requires an arresting force to stop it—even though the impelling force has ceased—so also may the poststimulant activity of protoplasm be an expression of its functional inertia. In other words, the activity of protoplasm which is not the result of applied stimuli and which is, in fact, exhibited even under conditions which tend to suppress it, is inertial. This, briefly, is Dr. Harris' biologic philosophy; logically pursued it leads him far. In biochemistry the overproduction of receptors as antitoxin by which, according to Ehrlich's side-chain theory, "acquired immunity" is possible, is explained by Harris as katabolic inertia—"a response which has outlived the stimulus." The postmortem vitality of the tissues is another example of katabolic inertia. But if this property is fundamental to the cell it must needs be exhibited in the living unit which those cells compose—the individual; and, a step further, in the race. So, according to Harris, this property of functional inertia is "responsible for racial characteristics and national destinies." Reversion to type is thus but another manifestation of the tendency of the individual to retain his racial *status quo*—a hereditary functional inertia. As related to consciousness "habit" becomes the "expression of the functional inertia of psychic activity"; if the habit is one of long existence the more nearly will it approach protoplasmic, rather than psychic, inertia.

That Dr. Harris' theory is new can hardly be claimed; in fact, he does not claim it himself. That he has expressed it more clearly and elaborated it more convincingly than has any previous writer is perhaps not too much to say. As a working hypothesis to explain much that is at present obscure the theory of "functional inertia" is valuable; but that it is distinctly a theory and lacks much in way of confirmation should not be forgotten. To those who enjoy biology in its philosophic aspects and derive pleasure from the mere perusal of virile and not too technical English this little book can be commended.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Infectious Eruptive Diseases in Philadelphia Polyclinic and College for Graduates in Medicine. Cloth. Pp. 534, with illustrations. Price, \$3.00. Philadelphia: W. B. Saunders Co., 1908.

Once in a while some genius succeeds in summarizing satisfactorily a complex and detailed subject. When we try, however, to give an illustration of such a successful summary in medical literature we are at a loss. Such masterpieces in epitome are rare in any department of literature, and when one does exist, as, for example, Darwin's "Origin of Species," it is usually dry reading. So, if we are critical in our estimate of the book under consideration, we believe that our position is due to the fact that Dr. Schamberg—a thoroughly competent dermatologist—has undertaken an almost impossible task. He has written a book of 518 pages and, in emphasizing the eruptive fevers, to which he gives 138 pages, he has left himself 380 octavo pages in which he undertakes to consider all of the remainder of dermatology. Now, it may well be argued that dermatology is over-refined and that some day, after our knowledge has increased, some great mind will simplify it by a number of broad generalizations, as Duhring did in one field with his dermatitis herpetiformis; but the fact remains that at present there are about 200 distinct dermatoses that have to be described if one is undertaking to cover dermatology, and an average for each condition of less than two pages octavo, including illustrations and with good readable print, is not enough to permit anything but wholly unsatisfactory consideration.

Dr. Schamberg's style is readable and clear, with the important exception that he is apt so to err on the side of caution as to be uncertain even about well-established facts. For example, impetigo "appears to be caused by inoculation with the germs of contagious pus." There hardly seems to be

any reason for hanging the student up in the air by an "appears" with such a well-established fact as the production of impetigo by infection with pus organisms. Another illustration might be offered in the discussion of the etiology of ecthyma—between which and impetigo, by the way, is inserted impetigo herpetiformis, a systemic disease of uncertain pathology. Blastomycosis is described twice, on pages 188 and 293. The illustrations are numerous and good.

INSTINCT AND HEALTH. By Woods Hutchinson, A.M., M.D., Lecturer on Clinical Medicine, New York Polyclinic. Cloth. Pp. 334. Price, \$1.20. New York: Dodd, Mead & Co., 1908.

Dr. Hutchinson has given the public a book that is as delightful reading as it is blankly heretical. We do not, of course, approve of all the views therein put forward, but we do realize that it is by outspokenness such as this, on what may be deemed popular and professional superstitions, that healthy investigation is courted and the wholesale acceptance of the "science" of proverbs is deprecated. Among the subjects dealt with are diet delusions, "poison foods," exercise, sleep, sunshine and fresh air, baths and bathers, clothes and the woman, complexion, sins of the shoemaker, child-life, and the health of the middle-aged man. Hutchinson champions common sense against the fiddle-faddle of much so-called "scientific" dietetics, which persists in treating the living organism as on the same basis with a test-tube. He castigates the breakfast-food, vegetarian and other dietary fads, protests against the "deification of the disagreeable" in life, and against those attempts to reduce living to a machine-like process, robbing it of all individuality, which would make all men live on the same food, practice the same social habits, require the same maximum or minimum of sleep, rise at the same time, bathe and heat their rooms at the same temperature, etc. He ridicules the gigantic *non sequiturs* whereby men who have attained to long life, robust health, or huge muscular development, instruct us how to arrive at the same result by doing as they did, forgetful of the fact that if each one of us were to attempt to put in practice all the various methods we should have to attempt the impossible feat of sucking and blowing at the same time. "As well," he says, "might the elephant endeavor to explain the secret of how to weigh three tons, or the boa constrictor write a pamphlet on how to grow forty feet long." He rehabilitates spices as valuable intestinal antiseptics and scores the oatmeal diet craze as based on a syllogism of this kind: "The Scots are a great people; oatmeal is their principal food; therefore oatmeal is a great food." He regards the fact as the most convincing proof of the greatness of the Scots, though hardly of the oatmeal. "The secret," he says, "of their wonderful success, both mental and physical, lies in the fact that any nation trained to survive a diet of oatmeal and the shorter catechism could survive anything and flourish anywhere." The book is not altogether free from dogmatism, due possibly to Dr. Hutchinson's epigrammatic style, but it abounds in humor and common sense and in a wholesome and cheery optimistic iconoclasm.

SLEEPING SICKNESS BUREAU. Bulletin No. 1, October, 1908. Paper. Pp. 51. London: Sleeping Sickness Bureau, 1908.

No introductory statement accompanies this bulletin, but it is to be inferred that the Sleeping Sickness Bureau proposes to publish a series of bulletins covering various phases of this most interesting disease. It is "issued under the direction of the honorary managing committee," of which the chairman is Sir J. West Ridgeway. Other members are Sir Patrick Manson, Sir Robert Bruce, Dr. J. Rose Bradford, Colonel Sir David Bruce, Mr. E. A. Walrond Clarke, Mr. H. J. Read, and Mr. A. Berriedale Kiehl. The director of the bureau is A. G. Bagshawe of the Uganda medical staff, who is also the editor of this bulletin. Bulletin No. 1 treats of the chemotherapy of sleeping sickness under the headings of: Treatment of trypanosomiasis in man; biologic accommodation of trypanosomes to chemotherapeutic agents; treatment of experimental animals; conclusions; bibliography.

It is a most excellent and timely recital of the experience with the use of the more or less specific drugs in the treatment of sleeping sickness in man and animals, such as atoxyl and

other forms of arsenic, antimony, mercury, and such dyes as trypan red, trypan-blue and pararosanilin.

The important practical outcome of past experience is expressed in two principles which are set forth by the author in his conclusions. First, combined therapy is demanded. "The employment of atoxyl or any other trypanocide by itself has ceased to be justifiable." The combined attack of two trypanocidal drugs seems to be more effective than any one used alone, even in very large doses.

The second principle is that of "alternation of trypanocidal agents." This is made necessary by the phenomenon of the resistance which a race of trypanosomes readily acquires against any one of the agents used, a resistance which they retain through many generations of passage in experiment animals.

LEHRBUCH UND ATLAS DER ZAHNHEILKUNDE MIT EINSCHLUSS DER MUNDKRAUKHEITEN (Lehmann's Medizinische Handatanten Band XXX) Von Gustav Pritsner, Lektor an der Universität Basel. Edition 2. Cloth. Pp 398, with illustrations. Price, 14 marks. München: J. F. Lehmann's Verlag, 1908.

This work of 30 chapters with 44 colored and 140 other illustrations, shows the anatomy of the mouth, jaws and teeth, as well as the pathology, histology, bacteriology, etc., of diseased conditions of the mouth. The pathology of the tooth pulp has been well worked out and beautifully illustrated. This work is by far the best contributed from a stomatologic point of view and demonstrates, conclusively, the stomatologic trend at the present time. The arrangement of subjects and simplicity of treatment make it a desirable work for the student as well as the practitioner. It should be of special value to dentists.

REPORT OF COMMITTEE ON BUILDING OF MODERN HOMES. By General George M. Sternberg, M.D., LL.D., Chairman of Committee. Paper. Pp 111, with illustrations. Washington, D. C.: The President's Homes Commission, 1908.

This report of a committee appointed by President Roosevelt to consider the housing of the poor in Washington, describes the deplorable condition of the houses of the poor in that city and tells what has been done to better this condition. Much space is devoted to the same problems in other cities and to the solution offered in them; and numerous plans and specifications for cheap and healthy homes for the poor are furnished. There is great need in Washington as well as in other cities, of sanitary homes for unskilled laborers and their families. The committee urges that such homes should be supplied as a philanthropic enterprise by those interested in the welfare of the community, for a profit can not be earned on houses for which only \$5 to \$10 a month is paid, provided they are kept in a sanitary condition.

CONSUMPTION. By N. S. Davis, A.M., M.D., Professor of Principles and Practice of Medicine, Northwestern University Medical School. Cloth. Pp 171. Second Edition. Price, \$1.00. Philadelphia. F. A. Davis Co., 1908.

The first edition of this work was one of the earlier treatises on consumption, designed for popular use, and laid down rules and principles of management which are now generally recognized as sound. Advances in methods of application and especially the results of sanatorium management made revision desirable, and in this edition Dr. Davis has rewritten portions of chapters and added one on the advantages of institutional treatment. More careful revision and more accurate proofreading would have prevented some minor errors, but, as a whole, the work deserves commendation as an interesting and safe guide for both professional and lay readers.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoen. Von P. von Baumgarten, o. Professor der Pathologie an der Universität Tübingen, und F. Tangl, o. Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Twenty-second Year, 1906. Paper. Pp 964. Leipzig. Verlag von S. Hirzel.

The present volume represents a review of the literature on pathogenic micro organisms for the year 1906. The amount of literature is somewhat less than in previous years, which is to the advantage of medical science. On a cursory examination the volume appears to sustain the reputation already gained by the numbers of previous years.

Medicolegal

Osteopaths and Death Certificates

The Court of Appeals of New York holds, in the case of *Bandel vs. Department of Health of City of New York*, that the statute of that state makes doctors of osteopathy physicians, while the Sanitary Code requires every physician in the City of New York to register his name with the department of health.

The court says that the only ground on which the health department refused to register this party, and the only reason advanced for opposing the motion to compel his registration, was, as specifically stated by the sanitary superintendent in his affidavit, that "a doctor of osteopathy by reason of his limited training and the express prohibition against his use of drugs and medicines and the use of surgical instruments, is not a physician and is not competent to diagnose and treat disease as a physician, not to give a certificate of death showing the cause thereof." The effect of the denial of registration as a physician to the party by the health department was that the body of a person who died while he was the medical attendant could not be buried on his certificate and not until a coroner had taken charge of the case and had held an investigation.

The court also expresses the view that when a person employs one licensed to practice, his family, in case of his death, should not be subjected to the intense annoyance of a coroner's investigation where the law does not require it. But it adds that, while, doubtless, the department of health can make stringent regulations as to the persons whose certificates of death it will accept for the purpose of a burial permit, it was sufficient to say that, so far as appeared, when this proceeding was commenced it had not made any regulation which excluded licensed osteopaths from the right to give such certificates.

But Chief Justice Cullen, with whom Justice Haight concurs, declares that the function of a coroner's inquest is to investigate the cause of death where there are reasonable grounds for suspicion that it has been occasioned by crime or violence. One purpose and a chief purpose of accepting a physician's certificate as evidence of the cause of death is doubtless to exclude suspicion of crime. Where death is caused by criminal means, it usually occurs through external violence or from poison. The osteopath is precluded by the law from practicing surgery or administering drugs, presumably for the reason that his education does not qualify him to practice where either drugs or surgery may be necessary. "I am, therefore," the Chief Justice continues, "not prepared to say that the board of health might not properly require that a certificate of death, which would exclude from the cause thereof either wounds or poison, be made by a physician who is competent to judge of such matters. It is sufficient for the disposition of this case to say that the Sanitary Code now in force draws no distinction between the two classes of physicians, but I think we should not intimate that the Sanitary Code may not properly be amended in this respect."

No Right to Practice Medicine Without a License

The Supreme Court of Iowa says that the defendant in the case of *State vs. Taylor*, commenced the practice of medicine in 1884, and continued in the practice thereof without a license until indicted in this case. He claimed that, having practiced in the state for five consecutive years, three years of which time was in one locality, he was within the exception of section 2579 of the Iowa Code, which provided that the provisions of the chapter shall not be construed to prohibit practice of physicians, as defined therein, "who have been in practice in this state for five consecutive years, three years of which time shall have been in one locality."

The first act regulating the practice of medicine in Iowa was passed in 1886, and the law as then enacted is substantially the law now as found in sections 2576-2583 of the Code. In the original act an exception was made as follows: "If not a graduate, the person practicing medicine or surgery

within this state, unless he or she shall have been in continuous practice in this state for a period of not less than five years, of which he or she shall present to the state board of examiners satisfactory evidence in the form of affidavits, shall appear before the state board of examiners and submit to such examinations as said board may require." In section 2579 the requirement of satisfactory evidence of practice was omitted, and the defendant claimed that because of such change the Legislature intended to say, and did say, that whoever had been in the practice of medicine in Iowa, whether rightfully or wrongfully, for a period of five years before that time, had the right to go ahead and practice without a certificate or license. The contention was manifestly unsound.

The original act was in force all of the time until the Code became the law, and the dropping therefrom the requirement of evidence cannot be construed into a legalizing act intended to shield one who had confessedly violated the law. Section 9 of the act of 1886 made it a misdemeanor for any person to practice without having complied with the provisions of the act, but that no penalties for a violation thereof should be enforced prior to the 1st day of January, 1887. It is very clear that after January 1, 1887, no one could legally practice medicine without complying with the act, or without bringing himself within the exceptions therein provided, and this the defendant did not do. He had never qualified under the exception of the statute but was daily violating the law, and, if his contention that the change referred to gave him the right to continue practice without a certificate or license be sustained, the court should have to hold that he had acquired such right by practice in violation of law. Such a holding would not only destroy the public protection intended by the statute, but it would offer a direct premium for a practice wholly in violation of such statute. The Legislature had no such intention, and the defendant was clearly not within any exception to the statute.

Death From Disease in Case of Lowered Vitality After Injury

The Supreme Court of Nebraska holds, in the case of Ward vs. Aetna Life Insurance Co., that in an action brought to recover on an accident insurance policy, where the question is whether death resulted from an accidental injury for which the insurer is admitted to have been liable, the bodily condition of the insured between the date of receiving such injury and his death is a relevant fact; and all things done or said by the insured which expressed or showed his bodily condition in reference to the injury are relevant.

Where his opinion as to the cause of death is asked of a physician called as a witness, it is neither necessary nor proper to include in the hypothesis the fact that the attending physician had pronounced the patient cured of an injury from which it was claimed his death resulted. An expert witness should give his own judgment uninfluenced by the opinion of other experts.

Whether the death of a person whose life was insured against death by accident was caused by an admitted accident, or resulted from some other cause, is a question for the jury, unless the proofs as to such cause of death are so convincing that from them all reasonable men in the fair exercise of their judgment would adopt the same conclusion.

Where a person accidentally injured is insured against accident under a policy which provides for the payment of a sum named in case death results solely from such injury within 90 days, all morbid changes in the exercise of vital functions or the texture of bodily organs which result from or are induced by such injury should be regarded as the effect thereof, and not as independent causes; and, when death results from such morbid changes, it is caused by such accident within the meaning of such policy. Beginning with a primary cause, conditions induced by such cause are affects in relation thereto as an effect, and not as a cause.

Where a person, after recovery from an accidental injury, succumbs to a disease which would not have been fatal but for the lowered vitality following such injury, the disease,

and not the lowered vitality, is the cause of death. The explanation given of this is, that the power of the healthy body to resist disease varies greatly in different individuals, and in the same individual at different times. Undoubtedly a lower state of this power follows convalescence from a serious injury for a considerable period; and an attack of disease is more likely to prove fatal when the patient is found in such lowered state. When an attack of disease is followed by death, which would not have occurred but for the lowered vitality of the patient, such lowered state may be considered as a condition that opens the way for the production of the effect, but not as its cause. In other words, it is not the cause of death, but the occasion, in that sense of the latter word in which it is understood to mean that which furnishes an opportunity for the event to occur, without being itself the efficient cause or sufficient reason thereof.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

January 23

- 1 Treatment of Acute Gonococcus Urethritis in the Male. J. Pedersen, New York.
- 2 *Repair of Lacerations of the Cervix During Puerperal Convalescence. J. C. Hirst, Philadelphia.
- 3 Two Instances of Simultaneous Occurrence of Hypernephroma and Carcinoma. G. B. Foster and C. H. Gerhard, Philadelphia.
- 4 *Vesicovaginal Fistula Following Abortion in Operation for Incomplete Congenital Transverse Septum of Vagina. S. M. Brickner, New York.
- 5 *Roentgen-Ray Examination of the Esophagus. S. Lange, Cincinnati.
- 6 *Incipient Tuberculosis of Lungs and Its Diagnosis. G. Wilson, Baltimore.
- 7 Clinical Gonorrhea in the Male. (Continued.) M. Huhner, New York.

2. Lacerations of the Cervix.—Hirst considers that there is no valid reason why injuries to the cervix or anterior wall resulting from labor should not be corrected at once, as is done with injuries to the perineum. The frequency of injuries to the cervix is, compared to those of the perineum, about 33 per cent. Of every hundred women with perineal tears at least one-third will have cervical tears in addition. The diagnosis of cervical tears is best made through a bivalve speculum and not by the sense of touch, which is most unreliable. The best time to make this examination is about the fourth day after delivery. The best time to repair the injury is, like all other injuries to the genital tract, on the seventh day after labor. For the past three years Hirst has applied to these cervical tears the principle of the double tier continuous suture of No. 1 catgut, chromicized to last about forty days, in the fascia. He describes the technic of the operation.

4. Vesicovaginal Fistula.—Brickner describes a case of vesicovaginal fistula which followed abortion in an operation for incomplete congenital transverse, septum of the vagina. The features of interest in this case lie: (1) In the pregnancy following the operation for the relief of the septum; (2) in the difficulty of delivering even a four and one-half months' old fetus; (3) in the complete subsequent scarification of the vagina; and (4) in the origin of the septum. He discusses the origin of congenital transverse septa.

5. Roentgen-Ray Examination of the Esophagus.—Lange calls attention to the fact that the Roentgen ray may be of great value in the recognition and study of esophageal disorders. Further observations are necessary to confirm the interpretation of the motile phenomena seen on the fluorescent screen. He outlines a method of diagnosis based on the examination of many normal cases and on sixteen cases of esophageal obstruction.

6. Incipient Tuberculosis.—Wilson says that to justify us in making a definite diagnosis in an adult we must have a "history" that is at least suggestive, and either find bacilli in the sputum or persistent physical signs in the lungs, especially at the apices, which can not be accounted for by

syphilis, a clearing up of a pneumonia or an undoubted attack of influenza, bearing in mind that the tuberculous invasion may simulate influenza; and it is in this latter group when there is no sputum, or frequent examinations are negative that tuberculin is of greatest value and fortunately, most exact. Hemoptysis in a person under 35, even though accompanied by slight symptoms and no physical signs on frequent examinations, should lead the physician to suspect tuberculosis so strongly that he should advise the use of tuberculin. Finally, in that group of patients in whom the physician is not justified in making a diagnosis, but in whom there is history of exposure to infection and symptoms, though slight, yet are suspicious, he should be frank and make them realize the necessity of fresh air, especially in their sleeping rooms, the building up of the body by extra feeding in the form of milk and eggs, the avoidance of over fatigue and the need of remaining under medical care until the suspicions have been justified or removed.

Medical Record, New York

January 23

- 8 *Common and Uncommon Localization of Otitic Brain Abscess, as Illustrated by Two Cases, with Recovery. B. Sachs and A. A. Berg, New York.
- 9 Adequate Drainage the Essential Step in the Successful Surgery of Brain Abscess. F. Whiting, New York.
- 10 Clinical and Anatomic Manifestations of Otitic Brain Abscess. A. Wiener, New York.
- 11 Pyloric Stenosis. J. S. Brown, Montclair, N. J.
- 12 *Symptomatology of Tuberculosis of the Larynx. G. Fetterolf, Philadelphia.

8. Otitic Brain Abscess.—Sachs and Berg discuss in this article the difficulties of localization and those of the surgical treatment of brain abscess, with special reference to drainage. Localization is most common in the temporosphenoidal lobes or in the cerebellum. If the former, there will be in addition to general symptoms—headache, somnolence, nausea, vomiting and slight optic neuritis, some hemiparesis and impairment of speech perception. Sensory aphasia is a common accompaniment of otitic brain abscess in the temporosphenoidal lobes. Right temporosphenoidal abscess is sometimes associated with dysarthria, not with sensory aphasia. Abscess in the cerebellum, in addition to general abscess symptoms, may show cerebellar ataxia, diminution or increase of deep reflexes, abductus paresis, acoustic nerve symptoms, and possibly cerebellar seizures. The motor area is rarely the seat of otitic brain abscess, wherefore the author's second case reported in this article is important, because it proves that an undoubted otitic abscess may involve the motor area. The three main considerations from a surgical viewpoint are: 1. A wide exposure of the area of the brain in which the abscess is supposed to lie. This is best done by raising an osteoplastic flap. 2. A most important consideration is the protection of the meninges against infection by the purulent contents of the abscess cavity. If this lies near to the cortex of the brain, or on it, it is more than likely that the meninges will be protected from infection by a barrier of natural adhesions that have formed before the operation is done. These are the most favorable cases for surgical interference. 3. Proper drainage of the abscess cavity. Here we must remember that there are two entirely different kinds of abscess cavities in the brain—one, with soft walls that readily collapse when the contained pus is evacuated; and the other with rigid walls that show no tendency to fall together, and that must be obliterated by the slow process of granulation. In the former, all that is required is the establishment of drainage by a thin slip of rubber tissue at the most dependent point of the cavity. In the latter the drainage must be by a tube of some kind, whether rubber, decalcified bone, or other material, according to the choice of the operator. This tube must be inserted at the lowest point of the abscess cavity, otherwise there is bound to be retention of pus.

12. Tuberculosis of the Larynx.—Fetterolf urges examination of the larynx in every case of actual or suspected pulmonary tuberculosis. This would save much suffering and many lives. Discussing changes in the voice, he remarks on a symptom noted by him in a few cases during conversation, which consists of a slight rotation and twisting of the head toward the position found in torticollis. This is usually

associated with a cicatrized and arrested tuberculous lesion of the voice-producing apparatus. It must not be forgotten, however, that while the patient is tuberculous the laryngeal lesion may be due to syphilis, hysteria, general asthenia, or may result from mechanical interference with the inferior and external laryngeal nerves. Cough need not necessarily be present with laryngeal tuberculosis. As a practical working basis it can be assumed that if the cough is harsh, "throaty" in quality, and unproductive or out of proportion to the amount of sputum, there is present more or less laryngeal irritation at the door of which can be laid some of the responsibility. Should there be present large infiltrations of the arytenoids the patient will have a characteristic tubular, indescribable quality to the voice which is almost pathognomonic. Not much that is significant can be gathered from the sputum, but attention should at once be directed to the larynx on the following history: The patient awakes with a feeling of fulness and dryness in the throat, associated with huskiness or some degree of aphonia. On arising, coughing begins, and is frequently associated with retching, or even vomiting, continuing until there is ejected a discoidal mass of inspissated mucus, dark, hard, and dry on one side, and yellow, green, sometimes moist on the other. The presence of blood in the sputum can but rarely be attributed to the larynx. Pain is the most serious symptom, and it is probably due to this that the laity regard "throat consumption" as such a terrible disease. When it occurs during deglutition advanced disease of the epiglottis is probably present. Dysphagia is rarely present, unless associated with pain in swallowing. Dyspnea may occur early or late. The symptoms enumerated are considered by the author only in their relation to the larynx, but the tonsils, pharynx, etc., should receive proper consideration. Moreover, the symptoms are elicited from the patient, not from the disease, so that his personal equation must form part of their valuation.

Boston Medical and Surgical Journal

January 21

- 13 *Surgical Treatment of Cancer of the Bladder. A. T. Cabot, Boston.
- 14 Some Aspects of Cystitis. A. L. Chute, Boston.
- 15 Tumors of the Bladder and Cystitis. E. Garceau, Boston.
- 16 *Value of Hemolysis in Diagnosis of Carcinoma. W. Whittemore, Boston.

13. Cancer of the Bladder.—Cabot emphasizes the value of the cystoscope in diagnosis of bladder conditions, and says that when the slightest doubt exists a second cystoscopic examination should be made before accepting or refusing operation. It is important that the early symptoms of bladder tumors should be widely known among general practitioners, for patients are often transferred to a surgeon at too late a stage because they had been long treated for cystitis or renal hemorrhage. Hemorrhage may appear either as a constant slight flow, in little clots intermittently, or in considerable amount. Pain does not usually show itself until the growth is far advanced, but the expulsion of blood clots causes painful tenesmus. Bladder irritation does not usually appear till late in the course of the growth. Microscopic examination of the urine may show bits of characteristic villi, but villi of imperfect type are sometimes found in connection with inflammatory bladder conditions when there is no tumor. Clumps of atypical epithelium, if abundant, are almost as characteristic of tumor as are villi. Even in the hands of skilled surgeons cases of bladder tumor often go long unrecognized. The way to avoid this is to look into every bladder over which the slightest shadow of doubt hangs. Cabot discusses the clinical pathology of these tumors and, from personal experience, thinks it would not be far from the truth to say that all papillomas in the bladder become cancerous unless thoroughly removed early. He holds that operation in papilloma through an operating cystoscope must necessarily be incomplete, and therefore can not be efficient. These growths, even when quite insignificant, should be removed by open incision; their early removal will cure the condition, and the operation on an early papilloma is comparatively simple. Cancer of the bladder is usually slow to invade the lymphatic system. The bladder may be divided roughly into two parts, the free and

the attached. A cancer on the free portion may be cut out with a good margin of healthy bladder wall about it; but when the growth is in the base of the bladder, the possibility of a removal which shall be followed by cure is problematical, and the operation is very severe and has a high mortality rate. A palliative, rather than a radical, operation should therefore usually be chosen in these cases. The question of approach is an open one. Cabot's feeling is that when we expect to do a radical operation we should open through the peritoneal cavity, and get all the added room that method affords. A small carcinoma should be excised with a liberal margin and the bladder wall sutured before removing the growth, by transfixing it with a shoemaker's stitch, crossing to and fro well below the base of the tumor. After the stitch is firmly drawn, the growth is cut off. When the ureter has to be severed, reimplantation in an uninjured portion of the bladder wall is the best course. The author does not agree with those who consider palliative operations useless. The comparative comfort resulting is often well worth the pain and confinement of operation. Since most of the pain is associated with urination, Cabot commends Watson's plan of diverting the urine from the bladder by double nephrostomy, as a cancerous rectum is relieved by colostomy.

16. Hemolysis in the Diagnosis of Carcinoma.—Whittemore summarizes his paper as follows: In this series of 109 cases, 39 normal individuals were tested, in whom hemolysis occurred 7 times (17 per cent.); 22 cases of carcinoma, in which hemolysis occurred 8 times (36 per cent.). It occurred in 50 per cent. of the cases of tuberculosis; also it occurred in Hodgkin's disease, chronic empyema, tabes, paraplegia, general paresis, in one case of malaria and in one of sarcoma. From these results he concludes that at present hemolysis is of no value in the diagnosis of carcinoma.

Lancet-Clinic, Cincinnati

January 16

- 17 *Experiences with Autogenous Bacterial Vaccines. O. Berg-hausen, Cincinnati.
- 18 *The Obstetrical Forceps. R. W. Stewart, Cincinnati.
- 19 Six Cases of Epidemic Cerebrospinal Meningitis. R. W. E. Irwin, Manchester, Ohio.

January 23

- 20 Expert Testimony and the Medical Witness. L. M. Crafts, Minneapolis.
- 21 *Hysterical and Neurasthenic Conditions Following Accidents. R. F. Turner, Memphis Tenn.
- 22 *Question of Legal Responsibility. A. E. Sterne, Indianapolis, Ind.
- 23 Mental Responsibility. C. W. Hitchcock, Detroit, Mich.

17. Abstracted in THE JOURNAL, Nov. 21, 1908, p. 1806.

18. Obstetrical Forceps.—Stewart holds that the forceps is the best friend the obstetrician can have, and one whose help he will need far oftener than he will that of the knife. The four cardinal principles that underlie every application of forceps are, (1) never to use them as dilators, but only (2), to expedite labor; (3) to bring to normal a badly placed fetal head; (4) to overcome obstruction in the mother's pelvis and soft parts. Stewart discusses each of these cardinal principles fully and dilates on the following general principles for their application: (1) the need and methods of absolute sterilization for both instruments and parts; (2) the choice of instruments for various applications; (3) the anesthetic and degree of anesthesia, (4) the advantages of substituting a firm strong table for the yielding bed in the application of the forceps.

21, 22. Abstracted in THE JOURNAL, Nov. 21, 1908, PP. 1806, 1807.

Northwestern Lancet, Minneapolis

January 15

- 24 *Medical Education Number.

24. This issue is taken up with a consideration of the unification of medical teaching in the State of Minnesota, including its history, account of the various medical colleges, etc.

Surgery, Gynecology and Obstetrics, Chicago.

December

- 25 *Surgical Treatment of pancreatitis. W. J. Mayo, Rochester, Minn.
- 26 *Etiology and Pathogenesis of Pancreatitis. W. D. Haggard, Nashville, Tenn.

- 27 *Physiology and Chemical Pathology of the Pancreas in Pancreatitis. J. H. Schroeder, Cincinnati, Ohio.
- 28 *Diagnosis of Pancreatitis. A. J. Ochsner, Chicago.
- 29 *Pancreatic Diabetes and Its Relation to Gallstones. A. C. Croftan, Chicago.
- 30 *Comparative Irritative Properties of Some Mercury Combinations Used as Antiseptics. G. B. Lawson, Roanoke, Va.
- 31 *Clinical Conclusions as to the Value of Vaccine Therapy in Surgical Infections. J. C. Hollister, Chicago.
- 32 *Operative Treatment of Unilateral Lung Tuberculosis by Total Mobilization of Chest Wall by Means of Thoracoplastic Pleuropneumolysis. P. L. Friedrich, Marburg, Germany.
- 33 *Visceral Prolapse. F. H. Martin, Chicago.
- 34 Comparison of the Total Urea Excreted by Each Kidney in Surgical Diseases of These Organs. B. S. Barringer, New York.
- 35 Total Avulsion of the Scalp. E. F. Robinson, Kansas City, Mo.
- 36 Case of Tuberculous Disease of the Cecum and Appendix. J. C. H. Leicester, Calcutta, India.
- 37 *Malignant Tumors of Ovaries. W. S. Gardner and S. McCleary, Baltimore.
- 38 Surgical Treatment of Tuberculous Adenitis, with Special Reference to the Cervical Lymphatics. J. A. Attridge, Detroit, Mich.
- 39 *Exstrophy of the Urinary Bladder. O. P. J. Diakonow, Moscow, Russia.

25, 26, 28, 29. Abstracted in Society Proceedings, THE JOURNAL, Nov. 14, 1908, p. 1724, and published in the *Lancet-Clinic*, Dec. 5, 1908.

27. This article is essentially the same as one published by the same author in THE JOURNAL, Sept. 5, 1908, p. 837, and in the *Lancet-Clinic*, Dec. 5, 1908.

30. Mercuric Chlorid.—Lawson publishes a comparison (with clinical reports) of the irritant properties of various mercurial preparations and draws the following conclusions:

1. Mercuric chlorid is more irritant to the skin when combined in solution with acids.
2. Mercuric bromid and iodid are more irritant to the skin than mercuric chlorid.
3. Mercuric chlorid is slightly less irritant to the skin when in solution in normal saline solution than when in distilled water.

31. Abstracted in Society Proceedings, THE JOURNAL, Oct. 31, 1908, p. 1535, and published in the *Lancet-Clinic*, Nov. 21, 1908.

32. Published in *Archiv f. klinische Chirurgie*, vol. lxxxvii. Abstracted in THE JOURNAL, Nov. 28, 1908, p. 1909.

33. Visceral Prolapse.—Martin, after a study of embryologic development, concludes that:

1. Defects in the growth of the human body arising as a result of an arrest at some point in the development from embryo (congenital) or as a result of reversion to a lower type (evolutional) are strong factors in the etiology of visceral prolapse.
2. The most conspicuous defects are observed in: (a) development of the skeleton; (b) the development of the peritoneum; (c) the development of the muscles of the trunk; (d) the development of the fascial layers of the trunk; (e) the development of the efficiency of the nervous apparatus controlling the viscera and their relation to the trunk; (f) the development of fat layers and deposits.
3. The conspicuous signs of these defects are exhibited in: (a) a straight spinal column showing little or no forward curve in the lumbar region, a perpendicular sacrum, a forward bend in the cervical region; (b) a flat chest, a small waist, perpendicular pelvis, protruding of the lower zone of the abdomen; (c) slightly forward bend of the trunk, stooping shoulders and long arms.

37. Ovarian Tumors.—A study of tumors of the ovary with particular reference to malignancy leads Gardner and McCleary to the following conclusions:

1. All ovarian tumors should be removed early, because primary carcinoma of the ovary usually begins in a benign growth and an early operation removes a prolific source of malignancy. Even when the malignant process has made considerable progress there is an excellent opportunity to effect a complete cure.
2. Ovarian tumors should be removed through an abdominal incision long enough to allow the tumor to escape without breaking the cyst wall. We must come back to what Washington Atlee called the "major incision"—the incision most strenuously advocated by J. Bland-Sutton.

39. Exstrophy of the Urinary Bladder.—Diakonow discusses Maydl's and Subbotin's operations and publishes his own modification of the latter as follows: Dissection of the longest possible quadrangular flap of bladder mucous membrane whose base is directly at the openings of the ureters is the first step. The flap may be in the middle line, or it may be oblique in order to gain length, or if necessary, it may be extended over the border of the mucous membrane into the skin. Through a 2 cm. long, transverse incision in front of the anus, the mucous membrane of the rectum, together with the submucosa, is separated from the external sphincter, the dissection being made with a scalpel to a depth of about 1.5 cm. and continued with closed blunt shears through the tissues to the bladder, the shears being controlled by a finger in the

Waddor. On puncture of the bladder by the shears a rubber catheter is passed from below and on the end of the catheter the end of the flap of mucous membrane is made fast by means of a silk ligature. By withdrawal of the catheter, the flap of mucous membrane is drawn down through and sutured to the skin of the anal border. The result is a newly built urethra having epithelial walls, which at the will of the patient can be opened or closed by the action of the external sphincter. Then follows the closure of the anterior abdominal cleft either by direct suture of the edges or by utilization of one or another plastic operation according to the requirement of the case in hand.

Journal Experimental Medicine, New York

January

- 40 *Pathogenesis of Waxy Degeneration of Striated Muscles (Zenker's Degeneration). H. G. Wells, Chicago.
- 41 Postmortem Rigor of the Mammalian Heart and the Influence of an Antemortem Stimulation of the Pneumogastric Nerves on Its Development. D. R. Joseph and S. J. Meltzer, New York.
- 42 Relation of the Weight of the Contents of Stomach and Cecum to the Body Weight in Rabbits. D. R. Joseph, New York.
- 43 *The Bordet-Gengou Bacillus of Pertussis. M. Wollstein, New York.
- 44 Effect of Conditions on the Latent Period and Rate of Aseptic Postmortem Autolysis During the First Ten Hours. H. C. Jackson, Albany, N. Y.
- 45 Relation of Protein, Lipoids and Salts to the Wassermann Reaction. H. Noguchi, New York.
- 46 Phagocytic Immunity. J. C. Meakins, New York.
- 47 *Relation of Tetany to the Parathyroid Glands and to Calcium Metabolism. W. G. MacCallum and C. Voegtlin, Baltimore.
- 48 Fatal Septicemia in *Macacus rhesus* Caused by a Streptococcus Decolorized by Gram's Method. R. V. Lamar, New York.
- 49 Autotransplantation and Isotransplantation, in Dogs, of the Parathyroid Glandules. W. S. Halsted, Baltimore.
- 50 Catalytic Activity of the Blood in Relation to (I) the Functional Sufficiency of the Kidneys; (II) Peritonitis. M. C. Winternitz, Baltimore.

40. Waxy Degeneration of Striated Muscles.—Wells summarizes his article as follows: In view of the theoretical deductions and the positive results obtained in the experiments, it would seem probable that the production of waxy degeneration depends on the action of lactic acid, which is formed by the living muscle under the stimulation of infecting bacteria or their toxins, the formation of large amounts of lactic acid and its accumulation being perhaps favored by defective circulation through the injured muscle. The hyaline transformation of muscle acted on by lactic acid is analogous to the swelling of fibrin placed in dilute acids. This view is supported by both negative and positive experimental evidence—the negative being that simple anemic necrosis, aseptic or antiseptic autolysis whether *in vivo* or *in vitro*, or the action of bacteria of various sorts on muscle *in vitro*, are all incapable of causing changes in muscle cells resembling those characteristic of waxy or hyaline degeneration of striated muscle. The positive evidence consists in the demonstration that lactic acid, even in dilutions comparable to the amounts that can be formed in living muscle, can produce a similar or identical waxy transformation of the striated muscle fibers, both *in vitro* and *in vivo*; and also the observation that muscles stimulated to exhaustion, under which condition lactic acid is known to accumulate in the muscle, show microscopically changes identical with those of Zenker's waxy degeneration.

43. Pertussis.—Wollstein discusses the bacteriology, animal inoculation, and serum reaction of pertussis, and finds in their study support to the view that the Bordet-Gengou bacillus is the possible cause of pertussis, but her studies have not produced any distinctively new evidence of this relationship beyond the proof of the wide dissemination of the peculiar bacillus in Nature and its occurrence in pertussis.

47. Discussed editorially in THE JOURNAL, January 30, p. 388.

American Medicine, New York

December

- 51 *Some Unusual Features and Complications Occurring in Typhoid. J. Walter, New York.
- 52 Relation of Headaches to Errors of Refraction: A Study of Three Thousand Cases. Private and Hospital Practice. A. I. W. Voorhees, New York.

- 54 Advantages and Disadvantages of the Intramuscular Injection Method of Treating Syphilis. W. B. Trimble, New York.
- 55 Acidemia and Autointoxication. H. R. Harrower, Chicago.
- 56 Early Diagnosis of Cancer of the Stomach. L. Kast, New York.

51. Typhoid.—Walter cites cases illustrating the complication of typhoid by influenza, malaria, pregnancy, localized edema of the abdomen, ulcer of the pharynx, and erythema; also cases simulating typhoid or remarkable from the advanced age of the patient, as well as some atypical varieties of this disease. In many cases he feels justified in pointing to intestinal autointoxication as a probable cause of chills and rise of temperature in typhoid.

Kentucky Medical Journal, Bowling Green

December

- 57 *Suggestive Therapeutics. W. E. Senour, Bellevue.
- 58 *Organic Serum Therapy. H. H. Cowley, Leavenworth.
- 59 *Use of Drugs in Treatment of Disease. W. S. Anderson, Newport.
- 60 Present Status of Therapeutics and Some of Its Agents. W. L. Helzer, New Haven.
- 61 Work on the Jefferson County Milk Commission. B. C. Frazer, Louisville.
- 62 *Considerations in the Diagnosis and Treatment of Diseases in the Accessory Sinuses of the Nose. G. C. Hall, Louisville.
- 63 *Symptoms, Diagnosis, and Medical Treatment of Inflammation of Kidney. B. F. Zimmerman, Louisville.
- 64 *Surgical Treatment of Inflammatory Diseases of the Kidneys. D. Barrow, Lexington.
- 65 *Symptoms, Diagnosis and Treatment of Neoplasms of Kidney. G. A. Hendon, Louisville.
- 66 Medical Management of Gallstones. F. W. Fleischaker, Louisville.
- 67 Surgical Management of Biliary Disease. L. Frank, Louisville.
- 68 Gonorrheal Conjunctivitis. L. S. Givens, Cynthiana.
- 69 Depressed Fracture of Skull—History of Case. C. L. Nichols, Louisville.
- 70 Pathology of Typhoid Fever, with Remarks on the Laboratory Method of Diagnosis. L. M. Moody, Madisonville.

57, 58, 59, 62, 63, 64, 65. Abstracted in THE JOURNAL, Oct. 31, 1908, p. 1546.

Ohio State Medical Journal, Columbus

December

- 71 Vaginal Cesarean Section. F. S. Clark, Cleveland.
- 72 Prosis of the Gall Bladder. E. Ricketts, Cincinnati.
- 73 *Diagnosis of Tumors of the Spinal Cord. W. B. Laffer, Cleveland.
- 74 Ulcerative and Purulent Cystitis. C. M. Harpster, Toledo.
- 75 Essentials in Treatment of Diseases of the Skin, with Special Reference to the Teachings of Lassar. L. Reich, Cleveland.
- 76 Trachoma in Its Sociologic Aspect. C. C. Stuart, Cleveland.
- 77 Obstetrics and Pediatrics—Their Growing Relation. P. L. Myer, Toledo.
- 78 Present Status of the Medical and Surgical Treatment of Exophthalmic Goiter. (Continued.) F. Warner, Columbus.

73. Abstracted in THE JOURNAL, May 23, 1908, p. 1721.

Military Surgeon, Carlisle, Pa.

December

- 79 *Origin and Condition of the Peoples Who Make up the Bulk of Our Immigrants at the Present Time and the Probable Effect of Their Absorption on Our Population. M. H. Simons, U. S. Navy.
- 80 Diagram of the Medical Organization, United States Army, for Service with a Division. G. H. Richardson, U. S. Army.
- 81 Retrospect of Cooperative Work of the Medical Services of the Government. H. W. Austin, United States Public Health and Marine Hospital Service.
- 82 *Tropical Diseases. J. M. Phalen and H. J. Nichols, U. S. Army.
- 83 Laceration of the Brain and Subdural Hemorrhage—Report of a Case Successfully Treated by Bilateral Intermusculo-Temporal Decompression. A. McGlannan, U. S. Army.

79. American Immigration.—Simons discusses the evolution of man and his gradual distribution over the face of the earth, with the formation of races, and applies to the question of immigration the deductions he draws therefrom as to the effect of crossing. A cross between the black and white, white and yellow, yellow and black, and black and red, usually inherits the bad qualities of both, but few of the good. It is not favorable to longevity or to desirable mental qualities. A mixture of varieties of a race, not of races, is necessary for the preservation and stimulation of the mental and physical qualities which insure the steady advancement of a people. To develop the best American type, we should insure not only that those coming in are desirable physically and mentally, but that their habits, methods of thought, and state of civilization are such that they will readily assimilate with us. Simons considers it a pity that the legal assumptions and responsibilities of manhood are not now marked by some ceremonial, such as was formerly

practiced by candidates for knighthood, or for admission to the warrior class among American Indians; the preparation therefor tended to foster the moral forces, self-restraint, tenacity of purpose, devotion to a high ideal of conduct, etc. He advocates restriction of marriage for the mentally, morally or physically defective or perverted. The admission of immigrants to the overcrowded tenement district is a danger to themselves and to others. They should be diverted to the country or to districts sanitarily fitted for them. It is particularly difficult to find men fitted for the Navy. The sailor formerly lived healthily in the open. To-day he lives in a steel fortress, artificially lighted and ventilated and much overheated. No wonder tuberculosis and infectious diseases are common in the Navy. The frequency of desertion Simons ascribes to defective moral development.

82. **Philippine Tropical Diseases.**—Phalen and Nichols report on the study of filariasis, bilharziosis, paragonimiasis, amebic diseases, cutaneous blastomycosis, tinea imbricata and yaws.

Iowa Medical Journal, Des Moines

December

- 84 Venereal Diseases and Blindness. L. W. Dean, Iowa City.
- 85 *Neurasthenia in Connection with Eye Disease. R. M. Lapsley, Keokuk.
- 86 Value of the Ophthalmometer in the Estimation of Refractive Error. F. E. Franchere, Sioux City.
- 87 *Ophthalmia Neonatorum and the Accoucheur. C. P. Franz, Burlington.
- 88 The Squinting Child. G. F. Harkness, Davenport.
- 89 *Treatment of Frontal Sinus Suppuration. H. Bailey, Waterloo.
- 90 Rupture of Bladder Due to Phimosis. J. H. Talbot, Sioux City.
- 91 Puerperal Eclampsia. N. M. Whitehall, Boone.

85. **Neurasthenia and Eye Disease.**—Lapsley emphasizes the frequency of the nervous element in ophthalmic patients, and the great importance of bad habits as a contributing cause.

87. **Ophthalmia Neonatorum.**—Franz advocates a law to oblige all physicians and midwives in every case of childbirth, no matter what the race, mental, moral, or social standing of the parent, to take prophylactic measures for the sake of the child.

89. **Frontal Sinus Suppuration.**—Bailey summarizes his article as follows:

There are no reliable external signs to indicate the size or shape of the frontal sinus.

X-ray photographs should be taken of all frontal sinuses as a preliminary to operation.

It is impossible to tell before operation whether or not bone necrosis has occurred in the sinus wall.

On account of the almost universal involvement of the anterior ethmoidal cells in chronic frontal sinusitis, no surgical procedure for the relief of frontal sinus suppuration should be considered complete that does not include also these cells.

For anatomic reasons, the intranasal operation for radical cure of chronic suppuration of the frontal sinus is a method which is dangerous to practice, and still more dangerous to recommend.

We have as yet, no ideal operation for the cure of chronic suppuration of the frontal sinus.

Maryland Medical Journal, Baltimore

January

- 92 Public and Private Water Supplies in Maryland. M. L. Price, Baltimore.
- 93 The Country Doctor. B. W. Goldsborough, Ocean City, Md.

American Journal of Surgery, New York

December

- 94 Treatment of General Peritonitis Complicating Appendicitis. D. N. Eisendrath, Chicago.
- 95 *Rational Spinal Support. H. W. Frauenthal, New York.
- 96 Clinical Types of Acute Dilatation of the Stomach with Experimental Researches. R. C. Kemp, New York.
- 97 Acute Perforating Gastric and Duodenal Ulcer. (Continued.) E. Elliot, New York.

95. **Rational Spinal Support.**—Frauenthal, in a well-illustrated article, calls attention to defects in conventional mechanical treatment now in use, due to the failure to apply scientific principles of mechanics in the fitting of braces. He draws the following conclusions:

Unless a brace rests on the pelvis, by collar across the crest of the ilium, it is ineffectual and harmful.

When disease occurs above the seventh dorsal vertebra, either the patient should be treated in the recumbent position for months or years, or a brace or jacket applied, with jury mast attached, that will take off the superimposed weight above the point of disease.

Children under three years of age with tuberculosis of the vertebra should be treated in the recumbent position in bed or on a portable cuirass.

In orthopedic work, we should use all that is accepted as beneficial in tuberculosis of the soft tissues.

Southern California Practitioner, Los Angeles

December

- 98 The Sixth International Tuberculosis Congress. C. E. Yount, Prescott, Ariz.
- 99 Why Applicants for Medical License Fail. F. C. E. Mattison, Pasadena.
- 100 Opsonic Index—Eastern Opinions Concerning Its Value. R. L. Cunningham, Los Angeles.
- 101 Joint Affections in Nervous Diseases. T. J. Orblson, Los Angeles.

Journal Indiana State Medical Association, Fort Wayne

December

- 102 First Aid to the Injured. I. W. Short, Elkhart.
- 103 Cystitis in the Female. E. E. Padgett, Indianapolis.
- 104 Myocardial Failure from Causes Other than Valve Lesions. A. C. Kimberlin, Indianapolis.
- 105 A Few Important Points in Regard to Nervous and Mental Diseases. C. F. Neu, Indianapolis.

Chicago Medical Recorder

December

- 106 Diagnosis and Treatment of Tuberculous and Pathogenic Bone Lesions. J. P. Webster, Chicago.
- 107 Dependence of Intraocular Diseases on Affections of the Nasal Accessory Sinuses. F. Brawley, Chicago.
- 108 *Lumbar Puncture and Blood Analysis in Diagnosis and Treatment of Meningococcus and of Tuberculous Meningitis. J. F. Hultgen, Chicago.
- 109 Antigonococcus Serum and Vaccine Therapy in Relation to Medical and Instrumental Treatment. F. Baumann, Chicago.
- 110 Ectopic Gestation with Early Recovery. R. Zentsch, Chicago.
- 111 The Medical Fee. A. C. Heffenger, Portsmouth, N. H.

108. **Tuberculous and Meningococcus Meningitis.**—Hultgen concludes that the blood changes in either of these two forms of meningitis, while not pathognomonic, are very valuable data in the early differential diagnosis. The relation between the total and the differential count is what we need to know and to interpret. Blood counts made at random, and without reference to clinical findings, are useless and even misleading. Our present-day knowledge of tuberculous meningitis is only fragmentary, and calls for energetic work in hematology and bacteriology. The eosinophilic leucocytes play an important rôle in the defense of the organism by liberating antibodies, the gathering and storing of which seems to be the special function of these white blood cells. They return in increased numbers after the recovery from any infectious, or even toxic disease. They return earlier if assisted by bactericidal sera, such as the Simon-Flexner preparation. The author's tables from the two cases of meningococcus meningitis show the close relation between the blood picture and its causative agency, and the still closer bond between the various leucocytes and the immunity or the systematic residue.

Journal of Ophthalmology and Otolaryngology, Chicago

December

- 112 Ocular Manifestations of Hysteria. R. J. Tynen, Chicago.
- 113 Dependence of Intraocular Disease on Affections of the Nasal Sinuses. F. Brawley, Chicago.

St. Louis Medical Review

December

- 114 Some Uses of Carbon Dioxid in Dermatology. R. H. Boggs, Pittsburg.
- 115 Tuberculous Adenitis of the Mesenteric Lymph Nodes. L. Rasseur, St. Louis.
- 116 Metastatic Dacryoadenitis in Gonorrhea. M. Wiener, St. Louis.
- 117 Treatment of Cancer of the Rectum. R. H. Barnes, St. Louis.

Colorado Medicine, Denver

December

- 118 Plea for Free Distribution of Diphtheria Antitoxin in Colorado. F. E. Waxham, Denver, Colo.
- 119 *Blood Conditions of Childhood. T. R. Love, Denver, Colo.
- 120 Needed Legislation to Regulate Milk Supply. L. O. Rodes, Boulder, Colo.
- 121 Avenues of Tuberculous Infection in Children. C. G. Hickey, Denver, Colo.

119. **Blood Condition**
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Montreal Medical Journal

December

- 122 Heart Disease and Pregnancy. J. C. Cameron, Montreal.
- 123 Cultivation of the Meningococcus from Eye Conditions Complicating Epidemic Cerebrospinal Meningitis. H. McKee, Ottawa.
- 124 Congenital Hypertrophic Stenosis of the Pylorus. F. J. Shepherd, Montreal.
- 125 Portal Infection Originating in Appendicitis. J. Bell, Montreal.
- 126 Treatment of Pott's Disease of the Lumbar Vertebrae. A. M. Forbes, Montreal.

Atlanta Journal-Record of Medicine

December

- 127 Surgical Conscience. R. M. Harbin, Rome, Ga.
- 128 Active Exercise in Locomotor Ataxia. T. Toepel, Atlanta, Ga.
- 129 Malaria. D. H. Du Pree, Athens, Ga.
- 130 Tracheobronchoscopy and Esophagoscopy. O. H. Johnson, Athens, Ga.
- 131 Etiology, Infection and Treatment of Typhoid Fever. B. W. Hall, Bowman, Ga.

Illinois Medical Journal, Springfield

December

- 132 *Diagnosis in Acute Infections of the Hand. A. B. Kanavel, Chicago.
- 133 *Psychopathology of Hysteria. S. T. Robinson, Edwardsville.
- 134 *Serodiagnosis of Syphilis. W. J. Butler, Chicago.
- 135 Responsibility of the General Practitioner in Cases of Strabismus in Children. E. J. Gardner, Chicago.
- 136 Multiple Sclerosis Complicated by Many Hysterical Phenomena. P. Bassoe, Chicago.
- 137 London's Eye Work Compared with that of Vienna. D. A. Vanderhoof, Rockford.
- 138 Urgently Needed Medical Legislation in Illinois. G. W. Webster, Chicago.
- 139 Fused (Horseshoe) Kidney. R. Robinson, Chicago.
- 140 *Nostrum Advertising in the Medical Press. R. M. Parker, Chicago.

132. Acute Infections of the Hands.—Kanavel continues the consideration of this subject previously dealt with by him in *Surgery, Gynecology and Obstetrics*, October, 1905, and November, 1907 (abstracted in *THE JOURNAL*, Jan. 4, 1908, p. 75). With reference to operative incision he says that the thenar space is best opened by an incision on the dorsum between the metacarpals of the index finger and thumb; the middle palmar space, by an incision along the lumbrical spaces extending into the palm; the ulnar bursa, by splitting it throughout its length, cutting the anterior annular ligament; the radial bursa by incision up to within a thumb's breadth of the anterior annular ligament; the fingers by lateral incisions into the sheaths; the forearm by lateral incisions above the wrist joint and an ulnar incision at the middle of the forearm. The after-treatment to preserve function is of as great importance as the proper operative procedure. Either without the other is sure to end in disappointment and failure.

133. Abstracted in *THE JOURNAL*, June 6, 1908, p. 1931.

134. Syphilis.—Butler discusses at length the serodiagnosis of syphilis, which he finds to be specific, and positive in from 90 to 98 per cent. of patients with syphilitic manifestations, in from 50 to 60 per cent. of latent cases, and in from 70 to 80 per cent. of patients with metastyphilitic or parasyphilitic disease. It is probably influenced by treatment. A positive reaction indicates activity of specific virus and calls for antisyphilitic treatment; but a negative reaction has not an equal negative value. It is diagnostic of a systemic infection, acquired or inherited, but not an organ diagnostic measure. It is useful in differential diagnosis and as an index for treatment.

140. Nostrum Advertising.—Parker considers the various factors in nostrum advertising, and insists that the party on whom we must rely to prevent nostrum advertising is he who contributes to our journals scientific articles. He is the real creator of the publication. He furnishes the life, the blood, the bone and the marrow of the medical journal. Who is he? He is the original research worker in the laboratory, the profound clinical student in the hospital ward, the expert surgeon and pathologist of the operating room. He is professor in our medical schools, the official and ex-official of our state and local society, the president and ex-president of the American Medical Association. He is even numerous among the ardent workers for this reform. He it is who sets the high standard of the publication which he favors with

the invaluable reports of his tireless scientific investigations, creating for it a demand which calls it to the tables of thousands of physicians in spite of the burdensome handicap carried in the advertising columns. Parker feels confident that he suggests an absolute preventive of nostrum advertising in the medical press when, he says, to the contributor: "Refuse your manuscript to every medical journal advertising disreputable preparations. Deprived of your contributions, what will the publisher have left to attract the readers to his nostrum-laden pages?"

Alabama Medical Journal, Birmingham

December

- 141 Surgery of the Gall Bladder and Bile Ducts. C. H. Peck, New York.
- 142 External Use of Adrenalin in Neuralgia, Neuritis and Reflex or Referred Pain. J. M. Lowery, Birmingham.
- 143 Fate of Young Lydgate. J. S. Mc Lester, Birmingham.
- 144 Normal Lactation. H. Swedlow, Birmingham.
- 145 Tuberculosis in Perspective. R. C. Bankston, Birmingham.

Journal South Carolina Medical Association, Greenville

December

- 146 Medical and Surgical Aspects of Prostatic Obstruction. A. B. Knowlton, Columbia, S. C.
- 147 Puerperal Tetanus, with Report of Cases. H. L. Shaw, Fountain Inn, S. C.
- 148 Have the Recently Reported Deaths from Diphtheria Antitoxin Been Satisfactorily Explained? L. C. Stephens, Greenville, S. C.
- 149 True Catarrh—its Proper Etiology and Treatment. W. P. Porcher, Charleston.

Medical Herald, St. Joseph, Mo.

December

- 150 Dyslocia in Apparently Normal Conditions. A. B. Somers, Omaha, Neb.
- 151 Appendicitis Accompanied by Local Suppurative Adenitis. G. G. Cottam, Rock Rapids, Iowa.
- 152 Influence of Nasal and Postnasal Obstruction in Children. L. W. Dean, Iowa City.
- 153 Diagnosis of Coxa Vara. D. T. Quigley, North Platte, Neb.
- 154 Arteriosclerosis. W. F. Waugh, Chicago.
- 155 Soil of Carcinoma, with the Treatment of the Same, so as to Overcome the Disease. C. F. de Francels, Brooklyn, N. Y.
- 156 An Effective Formula in the Treatment of Hepatic Insufficiency and its Congeners. R. W. Morris, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 9

- 1 *Cardiac Motion as Revealed by the Vivisection of Disease. A. Morison.
- 2 Naso-Antral Polypus. A. B. Kelly.
- 3 Five Years' Experience with Dubois' Apparatus for Administering Gases. J. Chapman.
- 4 An Measles. G. C. Garratt.
- 5 *Two Pain and Their Treatment. F. C. Wallis.
- 6 Examination of the Fat in the Liver in Health and Disease. E. L. Kennaway and J. B. Leathes.
- 7 Case of Excision of the Scapula. H. B. Mylvaganam.

1. Cardiac Motion.—Morison studies an instructive case of sarcoma of the heart, and refers briefly to a few others that have come under his personal observation. He considers that the study of these cases suggests that man lives on his ventricles, and chiefly on his left ventricle, not on his veins or auricles, and that the normal action of the ventricles is dependent on the healthy action and interaction of the three fundamental factors in organic life—blood, cell, and nerves—a trinity in which the blood supplies the force necessary to the production and continuance of vital action; in which the cell is the specific agency or mechanism for a given organic act; and in which the nerves regulate alike the production of the motive force and the degrees and regularity of its manifestation in the specific cell. A corollary to this conclusion is, that as man lives on his ventricle, not on his auricle, the examination and registration of ventricular action are of greater practical importance than a similar investigation of the action of his veins and auricles, although as a detail these points have a scientific interest.

5. Obscure Rectal Pain.—Wallis describes two cases of so-called obscure rectal pain, neuralgic in character, which proved to be examples of what he holds to be a fairly common rectal trouble in young people, namely, submucous

tracks leading up to the bowel from the anorectal junction. Excision of the whole ring of mucous membrane containing the tracks, and suture of the upper cut edge to the anal skin, produced a cure in both cases; both of which had failed of relief by all the usual methods of treatment for so-called rectal neuralgia.

British Medical Journal, London

January 9

- 9 *Abdominal Emergencies. S. White.
- 10 *Appendicostomy in Diffuse Septic Peritonitis. W. Billington.
- 11 *Appendicostomy and Surgical Aspect of Colitis. J. L. Dawson.
- 12 Leucocytosis in Appendicitis. G. Mitchell.
- 13 *Syphilitic Leukoderma and the Pigmentary Syphilide. Sir J. Hutchinson.
- 14 Vincent's Angina. J. T. C. Nash.

9. Abdominal Emergencies.—White says that the majority of acute abdominal cases may be referred to one of the following groups: (1) acute intestinal obstruction, strangulated external hernia, internal strangulation, postoperative obstruction, acute intussusception, volvulus, or gallstones; (2) gastric and intestinal ulcers that have perforated; (3) acute inflammatory lesions of septic origin, (a) cholecystitis, salpingitis, and appendicitis. He considers separately ruptured tubal gestation, twisted ovarian pedicle, and traumatic lesions of the abdominal viscera. He discusses the differential diagnosis and treatment. In regard to appendicitis, he holds that it would be better if operation were performed in every case within a few hours of the onset of symptoms. If the case has not been seen early or the question of interference has not arisen until after the lapse of twenty-four hours, it is probably better to postpone operation, unless the symptoms are both acute and progressive. Immediate operation is called for during any stage of the disease by (1) a rapidly increasing pulse rate, particularly if unaccompanied by a corresponding rise in the temperature; (2) the recrudescence of acute pain in the appendicular region after it had subsided, or a sudden increase in the severity of the pain; (3) extension of the pain, tenderness, and muscular rigidity to other parts of the abdomen; (4) commencing abdominal distention, with or without vomiting; (5) rigors; (6) an increase in the size of the appendicular swelling after the third day; and (7) a change for the worse in the patient's expression. White then describes the operative details in abscess cases and those grave and hitherto fatal cases in which septic infection has spread from the appendix to the general peritoneum. He describes the modern method of treating the last class of cases by removal of the primary cause of infection, the provision of free abdominal drainage, posture (the shoulders higher than the pelvis) and the use of large quantities of saline solution by the bowels.

10. Appendicostomy.—Billington lauds the advantages of appendicostomy in diffuse septic peritonitis, describes the method of flushing the bowel thereby, and reports illustrative cases.

11. Id.—Dawson describes the operation of appendicostomy and discusses its use on colitis, in preference to right inguinal colostomy and cecostomy.

13. Syphilitic Leukoderma.—Hutchinson discusses the dappled skin of syphilitic leukoderma, studying it comparatively with the skins of animals, and notes the fact that the young of many animals show in extreme youth a speckling, spotting or streaking of their skins, which they lose when adolescent. Hutchinson's theory as to syphilitic leukoderma is that the human skin is in many persons latently dappled, and that the condition becomes obvious under certain states of disturbed pigment function, of some of which the spirillum of syphilis may be the cause. He says that we may safely assume that the peculiar patterns evolved in cases of this affection are physiologic, and due to original organization, not to disease. He further suggests that in secondary syphilis, disordered function of the suprarenal and other organs favors the accumulation of melanin in the cells and that finally, exposure to light brings about its deposition in unprotected parts. He explains thus the preference of the disease for the female sex and for the neck and bust, as well as for the face. He conjectures that it is a

fection in non-syphilitic subjects than has yet been suspected, and suggests a series of control experiments on healthy individuals, brunettes for choice, but not excluding males.

Medical Press and Circular, London.

January 6

- 15 Hemoptysis and Emphysema. L. Williams.
- 16 *The Question of Dementia Præcox. R. Jones.
- 17 Intermenstrual Pain. R. D. Purefoy.
- 18 *Stitches [Pain]. Prof. H. Barth.

16. Dementia Præcox.—Jones summarizes his conclusions as follows:

1. There is no definite disease, "dementia præcox." The descriptions applied cover almost every possible variety of insanity.
2. The term "dementia" is inapplicable, because it connotes permanent and irrecoverable loss of mental function.
3. The application of "dementia" is unsatisfactory to patients in whom the loss of memory is not a prominent early symptom.
4. The term does not state whether it is the terminal stage or the stuporous condition which is of primary importance.
5. The qualifying adjective "præcox" is equivocal in so far as it leaves it doubtful whether the diseased condition evolves precociously, or whether it is stated to occur in early life or youth. It is therefore a vague and indefinite term, as these symptoms are also known at maturity and even at the menopause, and therefore they should find no place in a scientific or logical classification.
6. A term which implies a definite entity, and which is with some becoming more accepted as such, should be distinguished by definite pathologic findings, which is not the case.
7. Finally, it is more in harmony with practice and of greater help to diagnosis and treatment to use, in place of "dementia præcox," the term "adolescent insanity," suitably subdivided as at present.

18. Stitches.—Barth discusses the special kind of pain that occurs as a symptom of acute pleuro-pulmonary affections, and constitutes an important factor in the production of dyspnea. This pain is due to irritation of subpleural nerve fibers, from inflammation of the serous membrane. He discusses its relation to acute pneumonia, bronchitis, pneumothorax, serofibrinous, diaphragmatic and purulent pleurisy, and mentions its occurrence in a tuberculous subject as indicating the formation of another focus of disease. He also discusses the "epigastric spot," described by DeBrun as occurring in pulmonary emphysema consequent on dilatation of the right heart and mitral affections at the stage of threatening asystole, as well as false stitches and intercostal neuralgia.

Clinical Journal, London

January 6

- 19 Achylia. R. Hutchinson.
- 20 *Cancer Affecting the Alimentary Canal. J. Bland-Sutton.
- 21 Surgery of Rectal Stenoses. L. McGavin.

20. Cancer of the Alimentary Canal.—Bland-Sutton emphasizes, as an extremely interesting and important fact, that more than half the total number of cases of cancer which attack the body arise in connection with the alimentary canal. The distribution of cancer in the alimentary canal is important. It is common in the esophagus, extremely frequent in the stomach, rare in the small intestine, and extremely common in the large bowel, particularly the terminal two feet thereof. This point Bland-Sutton considers to favor those who believe cancer to be due to a microparasite, probably taken in with either food or water. He himself feels so strongly on this point that for years he has avoided eating all sorts of uncooked vegetables, even the salads, tempting as they are. He cites the remark of a Frenchman to the effect that while the English live well and are fond of vegetables, they are the only people in the world who trust the scullery maid to prepare them. Years ago when he made large numbers of autopsies on the bodies of animals dying in the Zoölogical Gardens, he was struck by the extreme frequency with which uncountable numbers of intestinal parasites were found, due to the eating of uncooked food. Bland-Sutton cites an observation of Behla, concerning the town of Luckau in Germany, in which most of the 5,000 people were engaged in agriculture. Between 1875 and 1898 the death rate from cancer amounted to 1 out of every 25 or 30. The cancer incidence, however, was not generally distributed, but to the eastern suburb, which was damp, low-irreled by a large ditch. The cancer closely followed the course of the ditch, which contained foul and stagnant water, in which the people washed and watered their horses, and which were largely eaten raw. Not a single death

from cancer occurred during the period investigated in the sandy, dry, elevated western suburb remote from the ditch. Bland-Sutton considers the characteristics of cancer respectively in the esophagus, stomach, small and large intestines, and rectum. He suggests that those parts of the digestive tube are most prone to become cancerous in which food makes the longest sojourn. The stomach is a churn, and in this hollow viscous there is much mixing and motion of the ingested material, and therefore prolonged and close contact. The digested mass is hurried through the small bowel into the cecum, where it is retained for many hours and is ordinarily deprived of the main part of its fluid. That the undigested mass known as feces is retained for many hours, and in some ill-conditioned individuals for days, in the descending colon and sigmoid is an undeniable fact. This retention would be favorable for the invasion of the epithelial covering of the gut by an infective agent.

British Journal of Children's Diseases, London

December

- 22 Carcinoma of the Stomach in a Boy Aged Fourteen Years and Nine Months. R. B. Ness and J. H. Teacher.

Indian Medical Gazette, Calcutta

December

- 23 *Endemic Cretinism in the Chitral and Gilgit Valleys, India. R. McCarrison.
24 Roentgen Rays as an Aid to Diagnosis in Some Common Surgical Conditions. J. P. Connor.
25 *Cancer in Travancore, India. W. C. Bental.

23. Published in *The Lancet*, Oct. 31, 1908, and abstracted in *THE JOURNAL*, Nov. 28, 1908, p. 1906.

25. Published in the *British Medical Journal*, Nov. 7, 1908, and abstracted in *THE JOURNAL*, Dec. 5, 1908, p. 2005.

Annales de Dermatologie et de Syphiligraphie, Paris

December, IX, No. 12, pp. 673-673

- 26 Cutaneous Symptoms of Human Trypanosomiasis. H. Darré.
27 Histologic Structure of the Skin in Monkeys. (La peau chez les singes.) W. J. Terebinsky.
28 The Balance Sheet of Mercurial Injections. (Le passif des injections mercurielles.) Lassere. Commenced in No. 11.

Archives des Maladies du Cœur, Paris

November, I, No. 11, pp. 609-672

- 29 Pathologic Anatomy of Hemolytic Icterus. H. Vaquez and C. Aubertin.
30 *Action of Strophanthin in Intravenous Injection in Heart Disease. (Action de la strophanthine en injection intraveineuse dans les affections du cœur.) D. Danielopolu.

30. Strophanthin in Heart Disease.—Danielopolu has given intravenous injections of strophanthin in 23 cases of heart disease, including 6 with chronic myocarditis with or without asystole, 8 with mitral affections, including some with myocarditis, 3 with aortic lesions, chronic nephritis and asystole, and 3 cases of asystole with emphysema. The results encourage him to affirm that strophanthin deserves to rank as one of the best heart tonics not only for the rapidity and energy with which it acts on the heart but also by its influence in remedying the disturbances due to impairment of the heart action, the accurate dosage and its action exclusively on the heart. He advocates the intravenous route, using 0.001 gm. (1/64 grain) of the strophanthin in a single dose, repeated if necessary for several days in succession, allowing always an interval of at least twenty-four hours. One or two injections generally accomplish the desired results without need for more. It acts more rapidly than any other heart tonic, he says, strengthening the contractions, slowing the pulse, raising the arterial tension and making the heart beat more regular while the amount of urine is notably increased and edema soon subsides as also the passive congestion in the viscera. These effects are especially marked in heart affections without advanced kidney lesions. With advanced kidney disease the strophanthin is useless, or at most merely prepares the way for administration of diuretics. In a few rare cases fine results may be obtained by administering the strophanthin in intravenous injection at the same time as theobromin by the mouth. The strophanthin has no effect on the kidney trouble except in so far as the latter is directly dependent on the cardiac defect. For this reason, the

injection of strophanthin may serve to differentiate whether the trouble is in reality heart disease with complications on the part of the kidneys. In his experience there were no chills or fever after the intravenous injection of the strophanthin, such as others have mentioned, and he is convinced that they can be avoided by strict asepsis.

Lyon Chirurgical

November, I, No. 1, pp. 1-32

- 31 *Tuberculous Abscess in the Fallopian Tubes. (Abscess froids tubaires.) H. Albertin.
32 Direct Transfusion of Blood According to Cotte. (Transfusion directe du sang.) A. Carrel.
33 *Subserous Cholecystectomy. G. Cotte.

December, No. 2, pp. 92-203

- 34 *Treatment of Artificial Anus. (Traitement de l'anus contre nature.) X. Delore and Thévenet.
35 *Chloroform Lesions of the Liver. (Rôle de l'intoxication par le chloroforme dans la genèse de certains accidents attribués "au fole appendiculaire.") L. Weill, P. Vignard and G. Mourlquand.

January, No. 3, pp. 205-332

- 36 *Perineal and Suprapubic Prostatectomy. V. Rochet and G. Salnier.
37 *Hypertrophic Tuberculosis of the Appendix. G. Gayet.
38 *Resection of Joints Followed by Mosetig-Moorhof Filling. (Pombage des articulations.) P. Vignard and G. Gruber. Commenced in No. 2.

31. Tuberculous Abscess in Fallopian Tubes.—Albertin reports three cases of a chronic tuberculous process in the Fallopian tubes entailing very large abscesses. The evolution is slow and insidious, some trivial trauma or a little vague pain in the region first calling attention to the lesion. In one of the cases related more frequent micturition was the only sign of the bilateral tubal lesion. The pain was never acute, merely a sensation of pressure, of dragging down behind the pubis with the dull ache radiating at times into the lumbar region and the legs. There was no evidence of an acute painful process at any time. Menstruation was not much disturbed. The absence of general disturbances is a special feature of this form of tubal abscess, although the patients may display a slight tendency to grow thin and weak. The tubal abscess of this kind is longer and flatter than the usual ovarian cyst, and it is bilateral, movable and not tender. The patients are generally young women free from any previous genital disturbances, but with antecedents suspicious of tuberculosis.

33. Subserous Cholecystectomy.—Cotte gives seven illustrations of the details of the technic of this operation and discusses its indications and contraindications, advantages and inconveniences.

34. Treatment of Artificial Anus.—Delore and Thévenet review their experience with six cases and conclude from this material and from study of the literature that the extra-peritoneal technic should be discarded except for very small fistulas without spur formation; enterectomy is the preferable operation. This does away entirely with the lesion without leaving a chance for adhesions to develop. Side-to-side enterorrhaphy is useful when the fistula is in the large intestine, especially when the cecum is involved. For the small intestine it should be used only when the fistula is very small and there is no spur, or when enterectomy is impracticable.

35. Chloroform Lesions of the Liver.—Weill and Vignard have encountered a series of fatalities after operations for appendicitis which they ascribe to the injurious action of the chloroform on the liver. The disturbances did not develop until the first or second day after the operation, but then the patients showed signs of extreme and progressive weakness, sometimes accompanied by jaundice and blackish vomiting. The patients all succumbed in two or three days and extremely severe lesions were discovered in the liver in every instance. The lesions of peritonitis could never cause such fulminating toxic accidents, and there were no signs of inflammation of the liver, merely a total cellular necrosis with the aspect observed in pernicious jaundice. Recent research has confirmed the extreme sensitiveness of the liver to the action of chloroform; Gurcel has recently demonstrated that chloroform anesthesia is capable of inducing in man the syndrome of pernicious jaundice. A large proportion of the

formed at the spot and absorbed and the path is cleared for the vital action of the phagocytes in the lesion, no longer hampered by the dead weight of the pus. The antiferment used in this new treatment has been that found naturally in human blood serum, transudates and exudates; the effusion in ascites and hydroceles has been the main supply to date, and interesting results have been reported by Jochemann, Müller and others. Kolaczek describes ten cases in which this treatment has been applied at von Bruns' clinic, at Tübingen, after extensive experimental research, and with encouraging results, although the indications for it and the technique have not yet been perfected. The blood serum of animals has comparatively little antiferment, and consequently it has been passed over and only human material used, but Kolaczek has found that animal serum can be condensed by vacuum distillation until the residue contains four times as much antiferment as natural human serum. In order to obtain it in still more concentrated form he increases the production of antiferment in the animal to be slaughtered by preliminary subcutaneous injection of a ferment solution. The new treatment therefore includes evacuation of the abscess by puncture and aspiration—no incision is required; the cavity is then rinsed out with the antiferment serum and it is then filled again with the serum which is allowed to remain. The extraneous ferment or antiferment must come into direct contact with the walls of the cavity to be effectual. This procedure is repeated from one to three times. The antiferment content of the fluid is tested with a solution of trypsin, the usual "antiproteolytic" test.

80. Examination of the Blood for Surgical Diagnosis.—Fabian discusses whether it is possible that affections of the blood or lymph producing apparatus are ever strictly localized at first or are general from the start. If localized, it may be possible by extirpating the primary focus to arrest the affection in its incipency. He reports four cases to start the ball rolling. In the first a large lymphoma in the neck was accompanied by a relative 70 per cent. lymphocytosis, with 3 per cent. large lymphocytes—Rieder's cells. Three days after excision of the lymphoma the blood picture had become approximately normal, the lymphocytosis dropping to 35 per cent., showing that the lymphoma must have been the main source of their production. The blood picture remained approximately normal when examined ten days later. Another tumor became evident by the sixth week, and the blood picture showed again the high relative lymphocytosis. In three other cases the wavering diagnosis was settled by the morphologic blood picture, but the multiplicity of the lesions when first seen excluded the possibility of successful surgical intervention. Instructive information might also be derived from the morphologic blood picture in echinococcus affections.

86. Asthma and Stuttering.—Knopf has noticed that these two neuroses are never encountered in the same person, and thinks that this is because the patient's attention is so completely taken up with the one that there is no room in his consciousness for another neurosis of coordination. He has treated over 200 patients with asthma or the habit of stuttering, and describes how he trains the patients to detect the incorrect elements in their mode of speaking or breathing, and to correct them, substituting the correct movements of the muscles involved. They are then shown how to speak or breathe correctly, and the general neuropathic tendency is treated. As the patients note the differences and learn how to use their muscles correctly in speaking or breathing, they gain confidence in themselves and lose their nervous dread, and the neurosis is cured. It is noticeable that the asthmatic seldom speak correctly while the stutterers seldom breathe properly.

87. Calcium Chlorid for Prevention of Serum Disturbances.—Gevin states that every alternate patient in a series of 200 was given calcium chlorid by the mouth when diphtheria antitoxin was injected. The results confirmed the efficacy of calcium chlorid in prevention of serum sickness, or at least in attenuating it, so that the drug is now given as a routine measure in every case. The dose was 1 gm. (15 grains) for the larger dose of serum and half this with the small doses.

89. Renal Decapsulation in Eclampsia.—Guinder's patient was a healthy young primipara who developed eclampsia a few hours after normal childbirth. Decapsulation of both kidneys was done after failure of other measures. The kidneys were soft and were easily decapsulated, but no benefit was observed, and the patient succumbed in coma. It is possible, he thinks, that the soft kidney may be the severer stage of which the "glaucoma" kidney is the first phase, which might explain the better results with the latter.

Therapeutische Monatshefte, Berlin

January, XXIII, No. 1, pp. 1-63

- 94 *Diphtheria Toxin and Antitoxin. J. Morgenroth.
- 95 Importance of Opsonins, Especially in Diagnosis and Treatment of Tuberculosis. H. Lüthje.
- 96 *Antifat Diet. (Ueber Entfettungsdiät.) H. Strauss.
- 97 Potassium Iodid in Actinomyces. R. Gall-Valerio and G. Rochar.
- 98 Are the Strophanthins on the Market of Equal Pharmacologic Value? A. Heffter.
- 99 *Pharmacology and Experimental Therapy. R. Gottlieb.

94. Diphtheria and Antitoxin.—Morgenroth reviews recent research which throws light on the mechanism of the action of antitoxin and suggests how to get the greatest advantage from it. He says that all the German antitoxin is now tested for the presence of tetanus germs, as Madsen has recently reported that the serum of a horse five days before the outbreak of severe tetanus was found to contain so much tetanus toxin that 4 c.c. caused fatal tetanus in the guinea-pig. The presence of tetanus germs in the antitoxin, therefore, is not always due to contamination from without. Other research lately has also shown that, contrary to the previously accepted opinion, antitoxin combines with the toxin only gradually, not rapidly; the conditions are thus more favorable the larger the amount of antitoxin injected at first. It has also been established that the antitoxin is absorbed after subcutaneous injection with surprising slowness. Two or three days are required for its total absorption and even then only a fraction of the amount injected finds its way into the blood. Intravenous injection does away with all this at one stroke and should be the rule in severe cases. The desiccated antitoxin does not contain any antiseptic, and it might be dissolved and used for the purpose, he says, if carefully filtered. The intravenous route is not popular in Germany for any drugs, but Fraenkel's recent reports of his success with strophanthin injected into a vein may turn the tide in its favor. Intramuscular injections are absorbed much earlier and more perfectly than the subcutaneous. Morgenroth's researches have confirmed this and Neisser states that he has obtained much better results from the antitoxin when it was injected into the gluteal or other muscle. Morgenroth asserts further that when the blood contains much salt, the toxin does not combine with the antitoxin, which is also the case when the blood or other vehicle gives an acid reaction. In the test tube, the toxin separated again from the antitoxin when the solution was made acid. This separation of the toxin from the antitoxin may be the explanation of the post-diphtheria paralysis. It also suggests that it may be possible to promote the curative process by administering some other substances, not specific in themselves, but which may loosen up the toxin bound by the protoplasm and allow its extraction and neutralization by the antitoxin. His experiments so far have resulted only in an aggravation of the toxicity; for example, the addition of a solution of pyrocyanase to the solution of diphtheria toxin materially enhanced its toxicity for the guinea-pig. It may be possible, however, to discover some substances that will have an opposite effect.

96. The Diet in Obesity.—Strauss devotes over two pages to a table of the different articles of food in respect to their calories per 100 gm. and the number of grams of the substance necessary to contain 100 calories. It is possible to select from his long list articles of food which will give a diversified menu while the patient loses weight without feeling the restrictions, as appetite is satisfied. He insists that the stomach should never be left long empty; frequent small meals should be the rule and alcohol avoided entirely. Vegetables, eggs (without the yolks), milk and cheese will

satisfy and prove useful when the obesity is complicated with nephritis, gout, stones in the urinary system or arteriosclerosis. The Karell "milk cure" is such pronounced underfeeding that it can not be kept up long, but it has given good service in his hands. In a recent case of contracted kidney with cardiac insufficiency and obesity but no dropsy, the patient lost 14 of his 206 pounds in one week. But merely by selecting such foods as contain few calories, he has found the weight decline evenly by about 4 pounds a week in ordinary obesity.

99. **Pharmacology and Experimental Therapy.**—Gottlieb defines pharmacology as the study of the changes which the vital processes undergo in the healthy and diseased organism under the influence of chemical substances. He expatiates on the intimate relations between pharmacology, experimental therapy, and the research on immunity, and states that every medical school should have a chair of pharmacology in which the lectures should be delivered in turn by specialists in these three branches. The training of physicians to think physiologically should be the chief aim. Pharmacology, he adds, has always suffered from lack of adequate means and equipment for its work, but even with these drawbacks it has accomplished much. He cites a number of instances to show the way in which the cooperation of the various branches has led to therapeutic discoveries, such as the warding off of diabetic coma by an alkali.

Therapie der Gegenwart, Berlin

January, L, No. 1, pp. 1-72

- 100 Fifty Years of Internal Medicine. (Fünfzig Jahre innerer Therapie.) E. von Leyden.
- 101 Fifty Years of Neurology. (Fünfzig Jahre Nervenheilkunde.) W. Erb.
- 102 Fifty Years of Surgical Work. (Fünfzig Jahre chirurgischer Arbeit.) F. König.
- 103 Fifty Years of Gynecology. W. A. Freund.
- 104 Fifty Years of Obstetrics. (Fünfzig Jahre Geburtshilfe.) A. Hegar.
- 105 Importance and Treatment of Affections of Ovaries and Fallopian Tubes. E. Bumm.
- 106 Efficacy of Roentgen-Ray Treatment of Venereal Ulcers. A. Buschke.

Virchow's Archiv, Berlin

December, CXCIV, No. 3, pp. 369-567

- 107 Phenomena Occurring when Air and Gas Get into Bone Tissue. (Ueber die bei der Luft- und Gasfüllung des Knochengewebes auftretenden Phänomene und ihre Deutung, insbesondere über die sogenannten "Gitterfiguren.") G. Axhausen.
- 108 Occurrence of Glycogen in Nuclei of Liver Cells. (Vorkommen von Glykogen in den Kernen von Leberzellen.) J. Karamitsas.
- 109 Sarcomatous Tumors of the Esophagus. (Sarkomatöse Geschwülste der Speiseröhre.) K. Donath.
- 110 Angioma of the Spleen. (Untersuchungen eines Angiomes der Milz.) E. v. Benckendorff.
- 111 *Research on Secretion of Mucus in the Intestine. (Schleimbildung im Darm.) A. Kaabak and A. Rosenschein.
- 112 Lipoid Degeneration. F. Munk.

111. **Excessive Production of Mucus in the Intestines.**—Kaabak and Rosenschein describe the results of research which demonstrate that mucus is produced in excessive amounts only at the point where there is local irritation. They found it impossible to induce production of excessive amounts of mucus by applying irritation at other points. Their findings confirm those of others in this line, and emphasize the necessity for assuming circumscribed local irritation as the cause of increased production of mucus in any stretch of the intestines or in the stomach. This points the way toward effectual prophylactic or therapeutic measures.

Wiener klinische Wochenschrift

December 17, XXI, No. 51, pp. 1765-1802

- 113 Clinical Importance of Serodiagnosis of Syphilis. (Die Wassermannsche Reaktion.) R. Bauer and G. Meier.
- 114 Isolation of Immune Body from Normal Serum. (Isolierung des Immunkörpers aus normalem Serum.) O. Bail and K. Tsuda.
- 115 Typical Findings in Sigmoidoscopy. (Ueber einen typischen romanoskopischen Befund.) G. Singer.
- 116 Cutaneous Affection in Relation to Acute Appendicitis. (Zur Ätiologie der akuten Appendizitis.) J. Boese.

December 24, No. 52, pp. 1803-1836

- 117 *New Mode of Access to Tumors in the Throat. (Neue Methode zur Freilegung der Tumoren im Rachen.) A. R. v. Rydygier, Jr.
- 118 Primary Sarcoma of the Pancreas. (Primäres Sarkom der Bauchspeicheldrüse.) A. v. Halasz.
- 119 Vaginal Amputation of Uterus. L. Wechsberg.

- 120 Treatment of Epispadias in Women. L. v. Mayersbach.
- 121 Tar Baths. (Neue Formel zur Bereitung von Teerbädern.) E. Spiegler.
- 122 Vaginal Douches with Carbonated Mineral Water. (Vaginalduschen mit kohlensäurereichem Mineralwasser.) M. Wickhoff.

117. **Improved Technic for Removing Tumors in the Throat.**—Rydygier reviews the details of twenty different methods and then describes another for which he claims superior advantages. An incision is made along the anterior margin of the sternocleidomastoid muscle, from the mastoid process to the sternum. Working from below upward, the vessels are exposed and the loose fat removed with the lymphatics. This enables the operator to work without fear of injuring the vessels. A second incision is then made from the center of the greater cornu of the hyoid bone on the sound side horizontally across to the first incision. This allows two large triangular flaps to be turned back, above and below, permitting remarkable access and oversight. He describes two difficult cases in which this technic was successfully applied for removal of malignant tumors.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 15, XXIX, No. 150, pp. 1613-1620

- 123 *Hemorrhagic Pancreatitis. A. Baduel.
- December 17, No. 151, pp. 1621-1628
- 124 Recurring Aneurism of the Aorta. G. Radice.
- 125 *Alcoholism and Helminthiasis. G. Marchese de'Luna.

December 20, No. 152, pp. 1629-1644

- 126 New Forms of Grave Anemia. A. Rossi.

123. **Hemorrhagic Pancreatitis.**—The case reported shows that the pancreatitis may develop some time after an accident affecting the organ. In the case described here were no signs of trouble for eight days after the fall, but then symptoms developed suggesting perforation or incus. The profound anemia, the intense pain and its localization, the blood in the vomit and stool, and the absence of signs of acute peritonitis are important signs of the "pancreatic drama." Expectant treatment is always dangerous.

125. **Alcoholism and Helminthiasis.**—Luna asserts from his experience at the Rome insane asylum that helminthiasis is able to induce mental and nervous symptoms similar to the action of alcohol, morphin or other poisons. He urges the importance of detecting and treating the helminthiasis as one of the first measures in all mental and nervous disturbances. Helminths were found in 50 per cent. of the 20 patients examined, and alcoholism in about equal proportions, coexisting in a few instances.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

OBSERVATIONS RELATING TO THE TRANSMISSION OF SLEEPING SICKNESS IN UGANDA; TO THE DISTRIBUTION AND BIOLOGICS OF GLOSSINA PALPALIS; AND TO CLEARING MEASURES. By Aubrey D. P. Hodges, M.D., London, Principal Medical Officer, Uganda Protectorate. Paper. Pp. 28. London: Sleeping Sickness Bureau. Royal Society, Burlington House, W., 1909.

THE DIVISION OF SURGERY OF THE MEDICAL SCHOOL OF HARVARD UNIVERSITY. Report of Research Work, 1906-1908, December, 1908. Bulletin No. V. Paper. Pp. 52, with illustrations. Boston: Division of Surgery of the Medical School of Harvard University.

REPORT OF SPECIAL COMMISSION APPOINTED TO INVESTIGATE TUBERCULOSIS. State of Connecticut, Public Document. Commission Appointed by the General Assembly of 1907. H. J. Resolution No. 426. Paper. Pp. 86. Hartford: Published by the State.

MODERN HOSPITALS. By Christian R. Holmes, M.D., Advisory Commissioner to the New Cincinnati General Hospital. Paper. Pp. 22, with illustrations. Cincinnati: University of Cincinnati.

REQUIREMENTS FOR THE PRODUCTION OF CERTIFIED AND INSPECTED MILK. Paper. Pp. 12. Worcester, Mass.: Issued by the Medical Milk Commission, January, 1909.

BIENNIAL REPORT OF ST. AGNES' HOSPITAL [and St. Agnes' Hospital Training School for Nurses], PHILADELPHIA, 1906-7. Paper. Pp. 63, with illustrations. Philadelphia.

SIXTH ANNUAL REPORT OF THE SYDNEY POSTGRADUATE COURSE AND HOSPITAL OF THE CITY OF NEW YORK. 1908. Paper. Pp. 84.

TWENTY-SIXTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MISSOURI FOR 1908. Cloth. Pp. 67. Warrensburg, Mo.

SEVENTEENTH BIENNIAL REPORT OF ST. JOSEPH HOSPITAL No. 2, ST. JOSEPH, MO. 1907-1908. Paper. Pp. 75.

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